SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

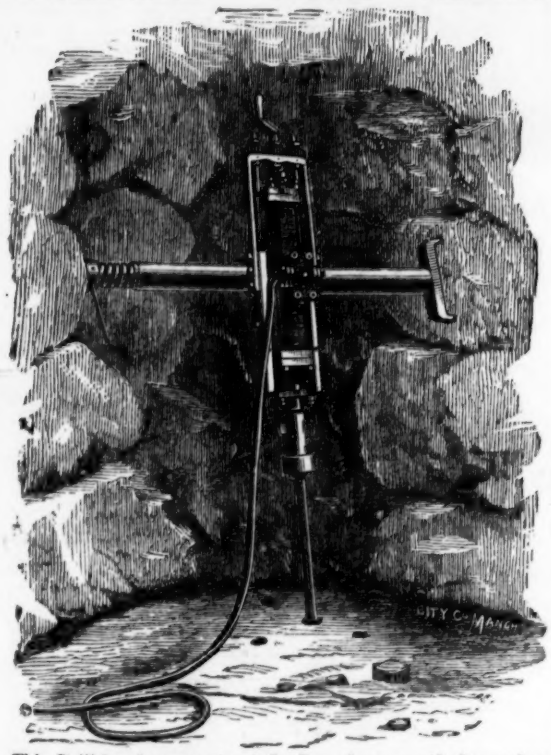
No. 2526.—VOL. LIV. LONDON, SATURDAY, JANUARY 19, 1884. PRICE (WITH THE JOURNAL) SIXPENCE BY POST £1 4s. PER ANNUM.

FIRST SILVER MEDAL, ROYAL CORNWALL POLYTECHNIC —Highest Award for Effectiveness in Boring, and Economy in the Consumption of Air

JUBILEE EXHIBITION, 1882.

THE PATENT

"CORNISH" ROCK DRILL.



This Drill has been constructed after a long practical experience in the requirements necessary for Mines, and has more than realised the expectations of its inventors. The chief objects in view were GREATER DURABILITY AND LESS LIABILITY TO DISARRANGEMENT; but it has also proved itself more EFFECTIVE AND ECONOMICAL.

We are now prepared to enter into any reasonable arrangement so as to enable users to judge of its merits, as we are thoroughly convinced that we can offer the BEST ROCK DRILL IN THE MARKET.

Further particulars on application to the Makers—

HOLMAN BROTHERS,
CAMBORNE FOUNDRY AND ENGINE WORKS,
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THE PATENT

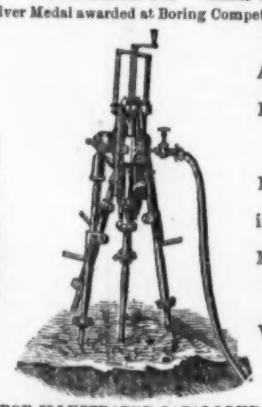
"ECLIPSE" ROCK-DRILL

AND

"RELIANCE" AIR-COMPRESSOR.

First Silver Medal awarded at Boring Competition, East Pool Mine, Sept. 1883.

SILVER MEDEL.—PARIS, 1878.—HIGHEST AWARD



Are NOW SUPPLIED to the ENGLISH, FOREIGN, and COLONIAL GOVERNMENTS, and are also IN USE in a number of the largest MINES, RAILWAYS, QUARRIES, and HARBOUR WORKS in GREAT BRITAIN and ABROAD.

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AUTOMATIC FEED
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GREAT EFFECTIVENESS.

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THE WELL-KNOWN PATENT SELF ACTING ORE DRESSING MACHINERY, as in operation at most of the large Mines in the Kingdom and Abroad, is now supplied solely by THE PATENTEE AND MANUFACTURER, Mr. GEORGE GREEN, Mining Engineer, AT GREATLY REDUCED PRICES also all descriptions of Mining Machinery, including GOLD AND SILVER AMALGAMATING MACHINERY, complete Stamp Mills, Water Wheels, Steam Engines, &c.
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Prices and particulars on application to the Manufactory ABERYSTWITH, SOUTH WALES

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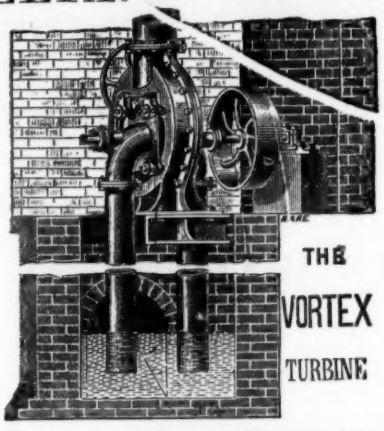


THE VORTEX TURBINE

A most efficient means of applying Water Power to all kinds of Machinery.

Largely used in DRIVING AIR COMPRESSORS, PUMPING WORKING ORE-CRUSHING MACHINERY, and for other purposes in connection with MINING.

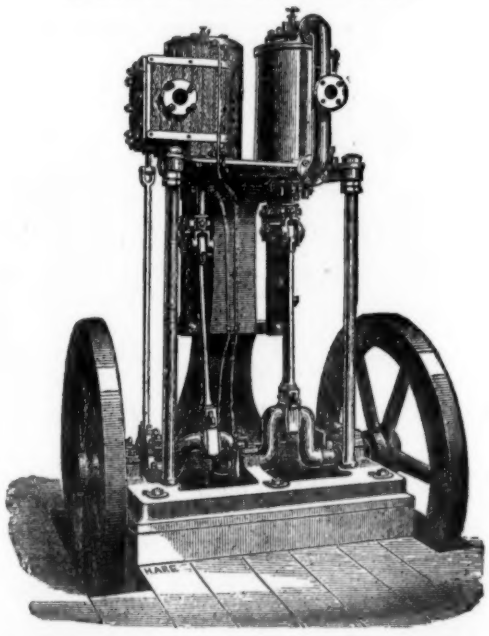
Successfully used in ELECTRIC LIGHTING, and in utilising DISTANT WATER POWER by means of ELECTRICITY.

A Pamphlet containing a full description of the Vortex, with several Illustrations and a number of Testimonials, can be obtained on application.

THE

"Champion" Rock-borer

AND AIR COMPRESSOR.



As an instance of the actual work done by this Machinery in various kinds of ground, some of it the hardest rock, it may be mentioned that in Cornwall, irrespective of the work performed by the "Champion" Rock-borers and Air-compressors purchased by various Mines, the drivage, rising, sinking, and stoping done by contract by the Proprietor with his own Machinery now amounts to over 1150 fathoms.

Several of these Air-compressors, ranging from 3½ to 12 tons in weight may be seen in constant work in the Camborne Mining District.

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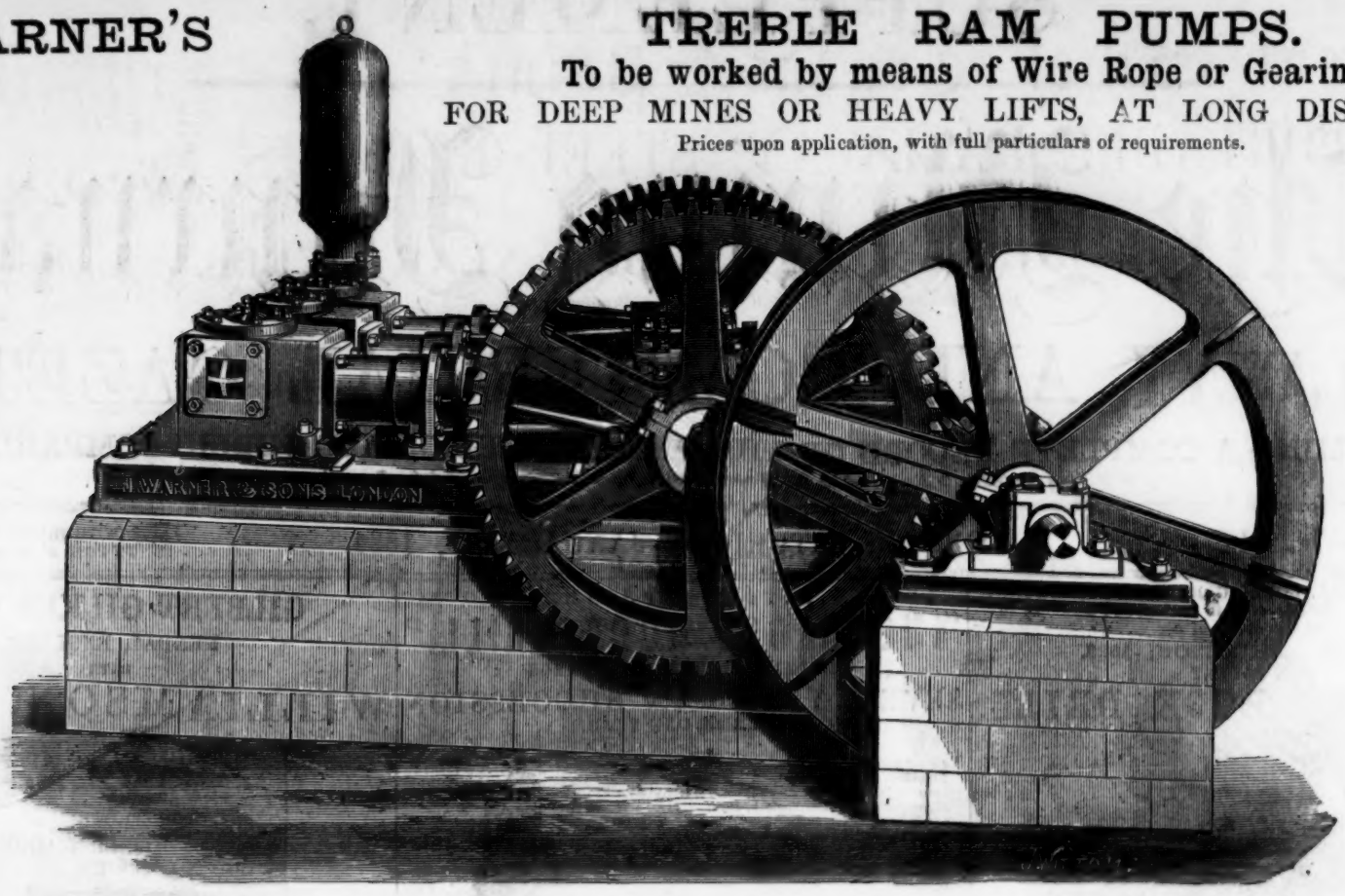
FOR DEEP MINES OR HEAVY LIFTS, AT LONG DISTANCES.

Prices upon application, with full particulars of requirements.



As supplied to Messrs BOWES, of Springwell Colliery, Gateshead, for a Lift of (600) Six hundred feet vertical through two miles of pipes.

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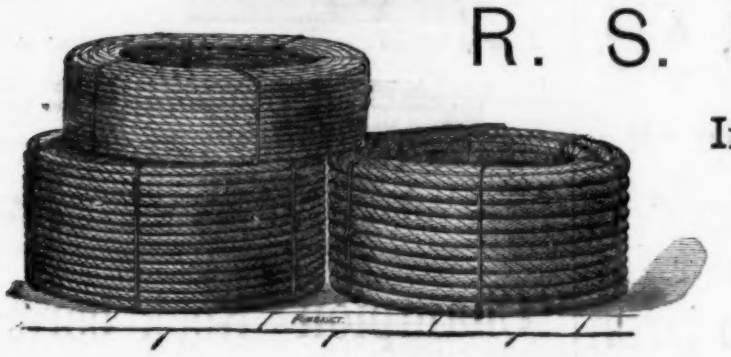

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PORTABLE RAILWAY, STEEL BUCKETS, &c., &c.

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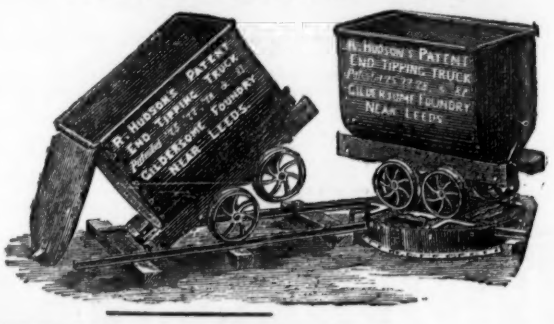
UPWARDS of 25,000 of these Trucks and Wagons have been supplied to the South African Diamond Mines; American, Spanish, Indian, and Welsh Gold, Silver, Copper, and Lead Mines; Indian and Brazilian Railways, and to Railway Contractors, Chemical Works, Brick Works, and Coal and Mineral Shippers, &c., &c., and can be made to lift off the underwork, to let down into the hold of a vessel, and easily replaced. They are also largely used in the Coal and other Mines in this country, and are the LIGHTEST, STRONGEST, and most CAPACIOUS made, infinitely stronger and lighter than wooden ones, and are all fitted with R. H.'s Patent "Rim" round top of wagons, requiring no rivets, and giving immense strength and rigidity. End and body plates are also joined on R. H.'s patent method, dispensing with angle-irons or corner plates.

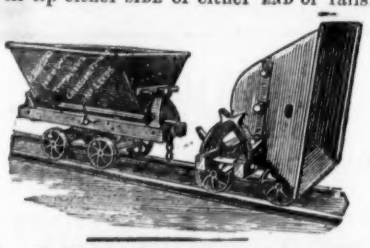
Patented in Europe, America, Australia, India, and British South Africa, 1875, 1877, 1878, 1881, and 1883.
N.B:—The American, Australian, Indian, and Spanish Patents on Sale.

CAN BE MADE TO ANY SIZE, AND TO ANY GAUGE OF RAILS.

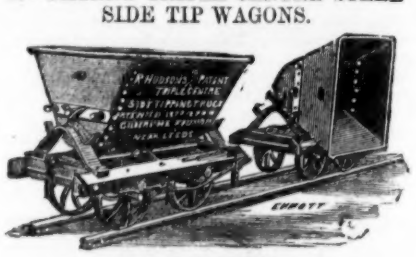
1.—PATENT STEEL END TIP WAGONS.



2. PATENT UNIVERSAL TRIPLE-CENTRE STEEL TIPPING TRUCK,
Will tip either SIDE or either END of rails.

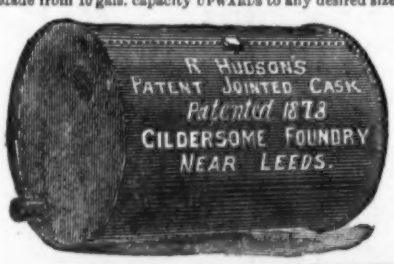


3.—PATENT TRIPLE-CENTRE STEEL SIDE TIP WAGONS.



4. PATENT STEEL PLATFORM OR SUGAR CANE WAGON.

5.—PATENT STEEL CASK.
As supplied to H.M. War Office for the late war in Egypt).
DOUBLE the STRENGTH of ordinary Casks without any INCREASE in weight.
(Made from 10 gals. capacity UPWARDS to any desired size.)

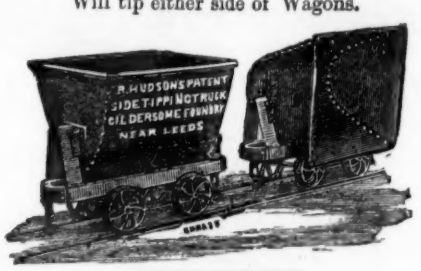


6.—ROBERT HUDSON'S
PATENT IMPROVED IRON SMITH'S HEARTH,
NO BRICKWORK REQUIRED.
A Special quality made almost entirely in STEEL, effecting a GREAT SAVING IN WEIGHT.

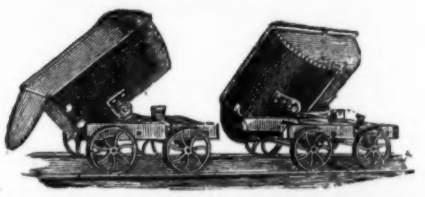
Large numbers in use by all the principal Engineers in this country and abroad.

One man can EASILY tip ANY WEIGHT in these wagons.

8.— PATENT DOUBLE-CENTRE STEEL SIDE TIP WAGONS,
Will tip either side of Wagons.

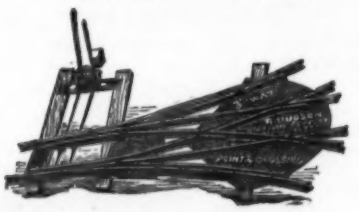


9.—PATENT STEEL ALL-ROUND TIP WAGON.

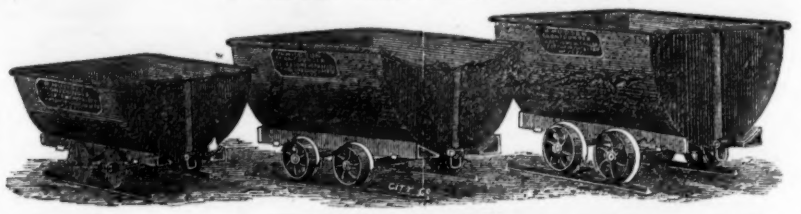


10.—LEFT-HAND STEEL POINT AND CROSSING.

11.—RIGHT AND LEFT-HAND STEEL POINT AND CROSSING.

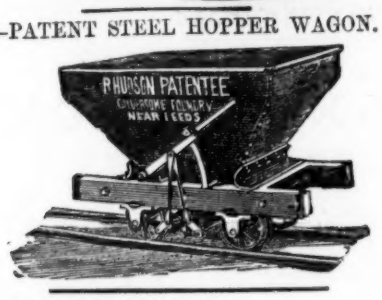


7.—PATENT STEEL MINING WAGONS.



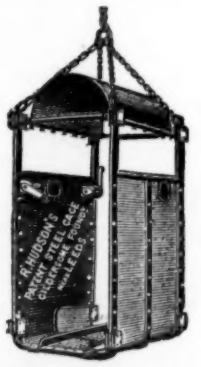
12.—PATENT STEEL HOPPER WAGON, WITH BOTTOM DOORS.

13.—PATENT STEEL HOPPER WAGON.

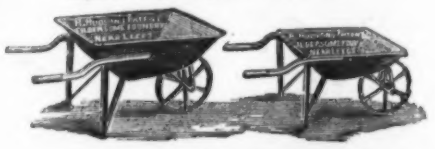


14.—SELF-RIGHTING STEEL TIP BUCKET.
(The "CATCH" can also be made SELF-ACTING if desired.)

15.—STEEL CAGE.



16.—PATENT STEEL WHEELBARROWS.
Made to any Size.
Lightest and Strongest in the Market.



A great success.

17.—STEEL SELF-CONTAINED TURNTABLE.

(Also made in CAST Iron for use where weight is not a consideration.

NO. 19.—PATENT STEEL CHARGING BARROW,
DOUBLE the STRENGTH & much LIGHTER than ordinary Barrows

18.—"AERIAL" STEEL WINDING TUB.

Largely employed in the South African Diamond Fields.

ALL KINDS OF BOLTS NUTS, AND RIVETS MADE TO ORDER ON THE PREMISES

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BELL'S PATENT ASBESTOS BLOCK PACKING, for High Pressure Engines. This Packing has been specially designed to overcome the difficulties experienced by engineers and others in the practical working of engines of the most modern type of construction. The greatly increased skill and workmanship now obtained in the construction of engines and boilers have led to a rapid increase in the working pressure, the object being the attainment of a high rate of speed combined with economical working, the practical advantage of which, however, cannot be realised unless the Packings are so constructed as to avoid stoppages for the purpose of repacking the stuffing boxes. It is now a recognised fact that the most perfect heat-resisting material suitable for the purpose of a Packing is Asbestos, but to ensure a successful application of this fibre, great skill is required in manufacture. In this Packing the Asbestos is woven into a stout cloth, and owing to the peculiar way in which it is manipulated, great elasticity is imparted to the Packing. This Packing has met with the most unqualified approval wherever it has been used, and on being taken out after about twelve months, working at 70 lb. pressure, it has been found to be in a perfect state of preservation, and was therefore replaced. The Patent Block Packing is square, as Fig. 1, and Figs. 2 and 3 represent the Round Block Packing with solid and hollow rubber core, and Fig. 4 without core, but with rubber inlaid. An Engineer writes as follows:—"The Asbestos Block Packing works splendidly. I have never seen its equal. We keep our gland nuts so that you can move them with finger and thumb, and can maintain a constant vacuum of 25½ in." As these packings are extensively imitated, and as it is a common practice among dealers and agents to supply the cheaper manufactures at my list prices, users are requested to see that the packing supplied to them bears my trade mark.

TRADE MARK.

The goods of this house are of the highest quality only, and no attempt is made to compete with other manufacturers by the supply of inferior materials at low prices. All orders must be sent direct to the undermentioned depôts and not through Agents or Factors.

BELL'S ASBESTOS BOILER PRESERVATIVE. This useful mixture by absorbing the free oxygen that is in the water entirely checks pitting and corrosion. It also disintegrates incrustation so immediately as to prevent its adhering to the plates. Not only is a great economy of fuel effected by keeping boilers clean, but the risk of having the plates burned is thereby obviated. It has been computed that 1/16 in. thick of incrustation causes a waste of 15 per cent. of coal; ⅛ in., 60 per cent.; ¼ in., 150 per cent. Thus the Preservative avoids the great risks which are inseparable from scaled plates, lengthens the life of a boiler, and covers its own cost a hundred-fold by economy of fuel. It is entirely harmless, and has no injurious action on metals. It can be put into the feed tank or boiler, as may be most convenient. Sold in drums and casks bearing the Trade Mark, without which none is genuine.

BELL'S ASBESTOS YARN and SOAPSTONE PACKING

for Locomotives, and all Stationary Engines running at very high speed with intense friction.

The following Testimonial refers to this Packing:—

Festiniog Railway, Locomotive Superintendent's Office,
Portmadoc, January 13, 1883.

Mr. John Bell, 118, Southwark-street, S.E.

DEAR SIR,

I have much pleasure in saying that the Asbestos Yarn and Soapstone Packing gives every satisfaction; indeed, better than we expected. We have a locomotive packed with it, which has been running five months (and think of the piston speed with our small wheels). I think the Soapstone a great improvement, as it keeps the packing elastic, and prevents it getting hard. I am very pleased with its working, and also the very low price for such good lasting Packing. The Asbestos Yarn we find is very useful, and answers admirably. Yours truly,

(Signed) W. WILLIAMS.

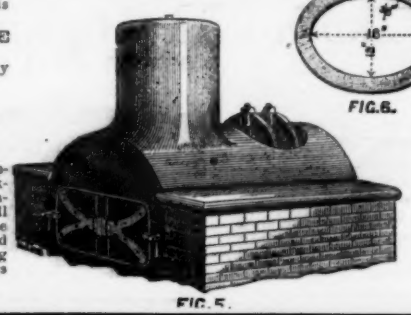

FIG. 5.

FIG. 6.

FIG. 1.

FIG. 2.

FIG. 4.

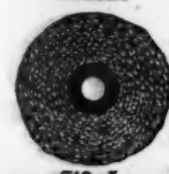

FIG. 3.

BELL'S ASBESTOS and INDIA-RUBBER WOVEN TAPE and SHEETING, for making every class of Steam and Water Joints. It can be bent by hand to the form required without puckering, and is especially useful in making joints of manhole and mudhole doors; also for large "still" joints where boiling fat and steam have to be resisted. It is kept in stock in rolls of 100 ft., from ¼ in. (Fig. 6) to 3 in. wide, and any thickness from 1/16 in. upwards. Manhole covers can be lifted many times before the renewal of the jointing material is necessary. The same material is made up into sheets about 40 in. square, and each sheet bears the Trade Mark, without which none is genuine. It is very necessary to guard against imitations of this useful material, and to secure themselves against being supplied with these inferior articles at my price, users are recommended to see that every 10 ft. length of the Asbestos Tape purchased by them bears the Trade Mark.

BELL'S SPECIAL LONDON-MADE ASBESTOS MILLBOARD, for Dry Steam Joints, made of the best Asbestos fibre, is well-known for its toughness and purity, and is absolutely free from the injurious ingredients frequently used to attain an appearance of finish, regardless of the real utility of the material. Made in sheets measuring about 40 in. square, from 1-64th in. to 1 in., and ½ millimetre to 25 millimetres thick. Each sheet bears the Trade Mark.

BELL'S ASBESTOS EXPANSION SHEETING (PATENT).

This Sheeting is another combination of Asbestos with India-rubber, giving to the steam user the special advantages of both materials.

The India-rubber Washer is protected from the action of heat and grease by an outer coating of vulcanised Asbestos cloth, thus producing an excellent joint where expansion and contraction render other materials unserviceable.

This material is admirably suited to steam pipe joints and every class of valve.

Valves made of this material are very durable, as they are not subject to injury by oil.

BELL'S "ASBESTOS LUBRICANT."

ILLUSTRATED PRICED CATALOGUE FREE ON APPLICATION TO

BELL'S ASBESTOS WORKS, SOUTHWARK, LONDON, S. E.

OR THE DEPOTS—

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SPECIAL.

PULLEY BLOCKS AND BRASS FERRULES

ALL KINDS.

HOME AND EXPORT. CHEAPEST AND WARRANTED.

SEND FOR PRICES.

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"THE PATENT ACCESSIBLE"

CENTRIFUGAL PUMP

Is the only Pump from which the disc can be removed by breaking the joint on a single face only.

Manufactured by CHARLES L. HETT,

HYDRAULIC ENGINEER,

Maker of

IMPROVED CENTRE VENT.

TURBINES

WATER WHEELS,

Horse, Steam and Wind Power

PUMPS.

Catalogues on Application.

ANCHOLME FOUNDRY, BRIGG, ENGLAND.

PERFORATED SHEET METALS

FOR

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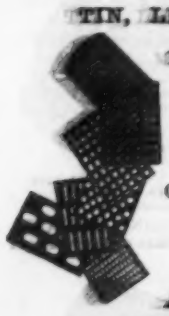

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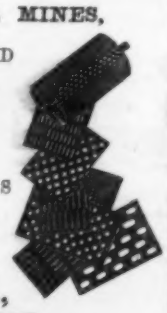

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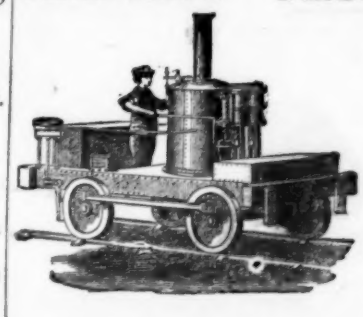

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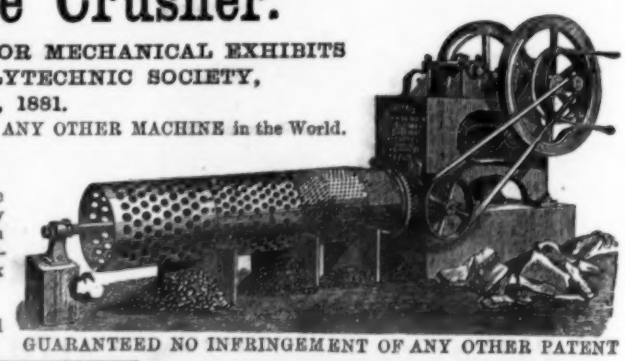

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Original Correspondence.

OPHIR AND RUSH VALLEY MINING DISTRICTS.*—No. I.

SIR,—Ophir and Rush Valley mining districts are situated on the western flank of the Oquirrh Mountain range, occupying a very large tract of mineral-bearing ground of about 200 square miles. Rush Valley mining district commences at about 32 miles southerly of Salt Lake City. Ophir mining district adjoins Rush Valley on the south, and Camp Floyd, on the north boundary line. The formation or country rock in these districts is principally dolomite and calcite (limestone), which appears everywhere in stratas, cliffs, reefs, and ledges. These stratas or beds of limestone dip with the slope of the hills towards the valley, losing their course gradually in the great upheaval. Through this limestone break Silverado, East, Dry, Soldier, Spring, and the other canyons and gulches of Rush Valley, as so many large channels formed by the great ancient water-courses and upheavals, leaving the broken lines of the strata on either side of the channel facing each other, and so appear as monuments, clearly indicating the position which they once occupied in remote ages, and at the same time convincing the geologist of the great upheaval which has taken place here.

We will observe that if it were in our power to press back those hills to their former position, to a level with the valley, that all these broken and disjointed lines would be brought together, forming again one whole and continuous line of stratification. It would appear that prior to the upheaval the country as a more or less horizontal plane was covered by a huge mass of limestone, 1500 to 2000 feet in thickness, and when the mighty subterranean powers exerted themselves in their united gigantic efforts, pressing upwards, they broke and upheaved the whole enormous mass of limestone, and formed hills, canyons, gulches, and ravines, like those we see at the present times rising with solemn awe-inspiring grandeur, and towering with their snow-capped hoary heads high up among the clouds; with this difference, however, that at remote ages they appeared and were grander still, not yet having undergone the influence of water, air, and glaciers.

Quartz and quartzite are next to limestone the most frequent in these districts. All the gangue and vein matter are highly silicious. North of Ophir City are huge cliffs of quartzite running south-west and north-east, crossing the northern gulches and ravines across Rush Valley above and past the Quandary and Honerine towards and past the Lion Mines. Quartzite carries the richest ore deposits, particularly so on Horn Silver Hill. Overlying the quartzite or vitreous sandstone is slate, shale, schist, and last limestone (calcite or dolomite) of the Devonian and Silurian age.

Dolomite or magnesian limestone appears in Ophir City as a belt west of the Chicago and Hidden Treasure Mines, and forms the belt continuing towards rush Valley and West Mountain, in Rush Valley district, the depository of most of the best ore producing mines. Granite appears at the head of Silverado, East and Dry Canyon, and also east and north-easterly of Stocton, near and on the main divide of the Oquirrh Mountain range. In the eastern part of Rush Valley district granite is more prominent.

Of porphyry there is one main belt, with several spurs of the said belt in each district. The Ophir belt or dyke ofporphyry runs from Lion Hill over Ophir, crosses the divide between East and Dry Canyon, continues over Shoo Fly Hill across the eastern flank of Mahogany Hill towards Rush Valley district, forming a dyke about 160 ft. wide.

This same dyke commences north-east of Silver Shield Hill, near the Roaring Lion Mine, running north-east to the summit of the divide, near the Sacramento Mine, thence northerly through Treasure Hill, past the Kearsarge across the Mono Mine, thence across the eastern flank of Mahogany Hill towards Rush Valley district. East of the Mono Mine a branch or blow out of the main dyke runs down the western flank of Shoo Fly Hill towards Jacob City. This porphyry appears here and there from 10 to 15 ft. above the surface in grotesque forms, spires, and pillars; at other places, as in the vicinity of the Sacramento Mine and in Treasure Hill, it quite disappears for some distance below the surface.

The prevailing structure of Rush Valley district is quartzite and porphyry, with beds of limestone and clayshale. I must term the porphyry metamorphic porphyry. That is to say, the rock has the crystalline structure of porphyry, changing in places from melaphyr to syenitic, dioritic, and granitic porphyry, but in most cases preserving the structure of the original shales and sandstones. The rocks have been thoroughly metamorphosed. Exceptions occur where isolated masses—yes, stratas of silicified limestone and quartzite—are found enclosed in the great mass of porphyry, and which, though entirely surrounded by porphyry, remain unchanged, except being silicified, as it appears in Spring Gulch. It is through this region of intense metamorphic action the treasure chambers of the Oquirrh are chiefly found. The mineral belt in Rush Valley is two miles wide, bearing west, north-west, and east-south-easterly. In this belt we observe two systems of veins,—one true fissure vein running parallel with the belt, dipping at an angle of inclination of from 60 to 80° northerly, and another system termed gash veins running north and southerly, and dipping at an angle of from 45 to 80° westerly. The east and west-bearing veins break through all the porphyry dykes, must, in consequence, be the birth of a more recent period than the broken through dykes. The north and south bearing veins run parallel in and with the porphyry dykes, from which we conclude that their age is identical with that of the porphyry dykes.

The hanging-wall of the main mother lode is blue, and the foot-wall grey, magnesian limestone, except in such places where the lode breaks through the porphyry dyke; here of course the walls are porphyry. In this porphyry, as stated above, here and there in places appear large masses of limestone embedded, so full attention is required in every respect to determine exactly in the underground works in what formation the orebody in places is. In general we observe that the ore in and near the porphyry dykes is much richer in silver percentage then the same is in the limestone. In Rush Valley district we observe a belt of granite porphyry running and continuing for a long distance in a north-easterly direction, crossing in its course the Iroquois, Muscatine, Great Basin, Honerine, First National, thence across St. Patrick's Hill, and the Silver King Mines, across the Lion Mine, in Soldier Bridge canyon, continuing in a north-easterly direction, as stated above. This dyke cuts in its dip downwards through all the levels of the Great Basin, Honerine, and First National Mines, which said mines are opened and developed to a depth of over 900 ft., following the course and dip of their immense vein.

Shales and schists form in Ophir district the hanging-wall of nearly all the main lodes. Spars of all the different silicious, calcite and magnesian varieties, abound everywhere as gangue or vein matter, as magnificent crystals, and as stalactites and stalagmites, in caves and crevices. The great upheaval has produced in the Oquirrh mountain range a perfect anticlinal curvature of the sedimentary beds, of which the longitudinal axis is north and southerly.

About 800 to 900 ft. north of East Canyon, by Ophir city, this anticlinal curvature is broken through from east to west, and shows in the break a dislocation or slip of the beds in an almost perpendicular direction to an extent of from 200 to 300 ft. North of this fault the country forms a sharper curvature than south of the same, showing in this a greater uplift in the centre, with relative and undisturbed curved flanks. On the north side a deep ravine cuts through the beds, following the centre line of the upheaval, and enters the canyon by Ophir city. In this ravine the quartzite and slaty schist underlying the limestone is exposed for a considerable distance. This quartzite and slaty schist belong to the Silurian age, which is determined by fossils found in the shaley beds. In these fossils we recognise—Modiolopsis modiolaris, palasterina, echinades, ambanychia, radiatia, orthonota, parallela, avicula, demissa, modiolopsis, orthonota, Lingula, cuneata (conchifer), dalmania, limulurus (crustace), zaphrentis, bilateralis (radiate), and others; from other fossils we recognise several specis of trilobites, singulas, radiates, spirifers, conchifers, and crustacea.

The general course of the mineral belt in Ophir and Rush Valley mining districts is north-west and south-east, and about two miles wide. All or most of the veins run at right angles, that is, north-east and south-west in the belt. Of course, many of these veins are accompanied by spurs and feeders of more or less extent. This belt commences and begins in Tintic, and runs over Greeley Springs, Camp Floyd, Ophir, Jacob City, Soldier Canyon, Spring Canyon, and Soldier Bridge Canyon, for several miles northerly beyond Rush Valley district through Tooele district to the Great Salt Lake. It has also been traced across the islands of the Great Salt Lake of Utah. The ores are divided into smelting and milling; the first predominate, and comprise galena, carbonates, chlorides, and sulphates. Ochreous earth constitutes the majority of the gangue or vein material as a result of the oxidation of argentiferous minerals containing arsenic and antimony. The most characteristic ores are galena, cerusite (carbonate of lead), horn silver, and silver glance. The components of the ore are numerous, and comprise galena, sphalerite, pyrites, jamesonite, argentite, boulangerite, cervantite, anglesite, limonite, mimetite, stephanite, wad, and kaolin.

W. BREDEMEYER, M.E., U.S. Surveyor.

Salt Lake, City, Dec. 19.

* Dr. Bredemeyer's signature was inadvertently omitted from the article on the Tintic Mining District, published in last week's Journal.

CALIFORNIA (OF COLORADO) GOLD MINING COMPANY.

SIR,—I write as a shareholder in this company, and as one who bought very much above par, and who now sees his property quoted at a small proportion of what he gave for it. The directors may say that the price of shares is nothing to them. It may be so, but I contend that the directors are themselves responsible for the price at which the shares of this company are quoted, and this by their action in keeping the shareholders completely in the dark as to the position of the company. Allow me to explain. The position of the company roughly stated (it is impossible to state it otherwise than roughly, details are wanting) is this—The last balance-sheet showed a profit of 7000*l.* odd to credit. The receipts, according to the statements published weekly in your useful Journal, have varied since the date of that balance-sheet between 600*l.* and 1800*l.* per week (whether gross receipts or net receipts is not stated.) These two items taken together would show that there ought to be at this moment a large balance in the hands of the directors—presumably for distribution. And how are these balances (if they, indeed, exist) being used?

Sir, the shareholders are in absolute ignorance. There is a mortgage of 5000*l.* on the property, but this the directors stated was not to be paid off, at all events at present. Dividends of 1s. per share per quarter were declared by them to be the order of the day. Two such quarterly dividends were indeed paid, the last in August, 1883. Since then the directors have entirely ignored this question of the dividends paid quarterly. Neither have they vouchsafed any statement to the shareholders as to where the money goes. Can it be that all the large receipts are gross, and that none are net? Is it that the mortgage has been liquidated? if so the shareholders have not a word to say. It is, again, that the leakage is so large that none remains for the unfortunate shareholders? It may be any or all of these combined. But the absolute silence of the directors I contend gives the "bears" of the property every opportunity. Silence, except in the case of a really shady property, is the worst policy, and this is stated by those who know to be anything but a shady concern. I write to you, therefore, Sir, to ask you to use your influence to get the affairs of this company ventilated. That they will bear inspection, and come well out of it, is the firm belief and conviction of— J. B.

St. James's, Jan. 16.

THE AMALGAMATION OF GOLD.

SIR,—In the *Mining Journal* of Dec. 15 on the above subject I find a letter from Mr. T. A. Readwin, in which he makes light of what my wave plate amalgamator has and is daily accomplishing. His remarks remind me of the advice given by a lawyer to the attorney in a case where there was no defence—"No case abuse plaintiff's attorney." If Mr. Readwin will turn to the *Mining Journal* of Sept. 30, 1882, he will there find in the Supplement of that date a challenge I gave to him, and to any other person, who had either invented or improved any amalgamator, to a public trial of my machine alongide of any other that could be produced. As many who read this may not have the Journal of that date at hand I send a copy of my challenge written from Spain on Sept. 19, 1882, and I ask the favour of your inserting it with this letter.

I have no wish to attempt to crow over Mr. Readwin, because my amalgamator is such a success, in comparison with the one he attempted to form a company to bring out as advertised in the *Mining Journal* of Sept. 2, 1882, and which I showed in a letter of the 23rd of that month was only a copy of a grinding mill that I saw at work at Derby in either 1865 or 1866, but I do object to his display of technical terms with a view of throwing learned dust into the eyes of the public in the view of throwing them off the scent after truth in this very simple process of extracting gold from quartz, by quoting a lot of "ites," "ates," "evites," "ogens," and a host of "ides' too numerous to trouble your readers with. I am prepared to work ores containing all these, and as many more as he likes to find or invent, and to get the last particle of gold out of the ore, and I will use nothing but pure mercury in my simple amalgamator to accomplish this.

The real success of any process is, will it pay? I say that my machine and process will do so, for I can treat 20 tons of ore in 24 hours at a cost for ½-horse power to drive it, and a few pence for oil, for my amalgamator will work any length of time, provided the mercury is not too heavily charged with gold, without the slightest attention except what is necessary to give the working parts a little oil a few times a day, and that on the whole of the ore being put through 30 minutes will suffice to clean it out by any, even an unskilled, person. I cannot believe in Mr. Readwin's oft-repeated theory that gold grows, nor could I quite credit his assertion that a piece of gold about the size of a small pea on the outside of a piece of quartz had all been produced spontaneously in 14 days, yet he told me this when showing me the specimen in July, 1881. But I do say it is an insult to our common sense to say that metals cannot be separated from the matrix or from each other. I grant that frequently this cannot be done profitably, but in such a metal as gold, with its affinity for quicksilver, together with the very great specific of both of these metals, I assert that I can secure it to the last particle, no matter with whatever it may be in combination.

Thomasville, N.C., U.S.A., Dec. 28. HENRY MOON, M.E.

FAIR TRADE AND PROTECTION.

SIR,—"Common Sense" will do well to remember that the present endeavours on the part of the supporters of "fair trade" are not confined simply to the commodity of tin. It is a well-known fact that the first great cry for Free Trade came from the large towns and cities, the working classes being told that their loaf would be turned into a big one. The British farmer was naturally alarmed at this movement, especially as he knew full well that he would have to encounter single-handed the great corn-growing countries of Russia and America, whose home industries were carefully protected. This, however, had no effect on certain politicians, who looked only on the interests of their own class. Strangely enough it has now become clear that not only the British farmer but other classes are suffering from this peculiar and one-sided system of national commerce. The loaf is by no means so big as was anticipated—it is, in fact, not a great deal bigger than in former days. Foreign competition and foreign protection are telling on almost every branch of trade and commerce; the working classes are feeling it, and the cry for help now comes from the very sources where the efforts for Free Trade were strongest.

A society has been formed, presided over by Mr. Sampson Lloyd, one of the soundest and most experienced commercial authorities in the kingdom, statistics are published clearly proving that England, with lop-sided Free Trade, is lagging behind other nations with the wisdom to protect their own interests, and the time is fast approaching when, in the combined interests of agriculture, mining, and general commerce, this great national question will have to be looked unflinchingly in the face. It is curious to notice how naively "Common Sense" disposes of Protection as a thing of the past, seeing how many articles of daily consumption are still taxed, and seeing also the attempts on the part of the Government to deal on the principle of reciprocity by treaty arrangements with France and Spain. Mr. Cobden, finding that his prediction and the prediction of Mr. Bright that all the nations of the earth would eagerly adopt Free Trade in five years after the passing of the Bill in England, did not come to pass, himself became an Ambassador to France, and entered into a commercial treaty, which to all intents and purposes was a return to Protection. The idea entertained by "Common Sense" that France and America are becoming favourable to Free Trade, seeing that recent tariffs on the part of France could not be accepted by England, and that America is laying down still more stringent protective regulations, can hardly be considered of much weight.

Tavistock, Jan. 15. OBSERVER.

FAIR TRADE AND PROTECTION.

SIR,—"Common Sense" has a right to form his own opinion as to the results of what is called Free Trade, but I have a similar right, and I come to the opposite opinion that he has arrived at. I recollect the remark of a merchant in answer to a question as to the price of timber at the time when the duty was taken off. He said the price would advance, because there would be a greater demand for timber when the duty was removed. Many people agree that because great prosperity took place soon after the repeal of the Corn Laws that even a duty of 1s. a quarter was bad. Now, I believe that this great prosperity may be otherwise accounted for. I mean by the immense quantity of gold discovered about this time in California, and afterwards in Australia. Miners wanted implements and luxuries, &c., in exchange for their gold, and no other country being then in a position to supply it a large proportion of the gold came to England,

Let another and equally large discovery of gold take place now, and England would not benefit as she did 30 or 40 years ago, because European capital has established manufactories, both on the Continent and in America since that time, which would, of course, come in for at least a portion of the orders. Both the French and Americans are too wise under present circumstances to adopt Free Trade. Individuals among them may preach it, but neither nation will adopt it. The wise statesman is he who will adopt small duties—duties not prohibitory—duties which it is not worth anybody's while to try to cheat or evade—and thus obtain much of the revenue in a way felt by nobody.

I did not see the Times for Jan. 8 last, but the Christian World, dated Jan. 10, quoting it, says:—"Since 1871 there has been a decrease of about 100,000 in the number of farm labourers." It also says that "in Cornwall we find that there are some 5000 less miners than there were 10 or 12 years ago." Now, Sir, there must be something wrong somewhere when we find the inhabitants of a country decreasing thus, and I think "Common Sense's" sentiments will not satisfy the public generally. He says:—"I do not deplore times of depression. It would be a poor look-out for the investing public if they did not come, as they do, almost periodically."

To benefit our countrymen, I am in favour of a small duty on tin raised out of this country. I was pointed out some small houses in the North of England where the united incomes of the family amounted to some 500*l.* or 600*l.* a year (for father, mother, and each child were all earning money) yet by such families no income tax was paid, therefore they did not contribute to the Exchequer, save indirectly by the use of tobacco and alcohol. If Free Trade were universal, then wars would cease, for no country could then go to war without suffering unendurable losses and incovenience. Free Trade will become universal when we have a different race of inhabitants on this earth. When men cease to be selfish; when there is no necessity for an army or navy, policemen, magistrates, or lawyers; when all men are just. But this will not happen during the lifetime of— COMMON SENSE No. 2.

PROTECTION, AND TIN MINING.

SIR,—Your correspondent "Common Sense" pronounces *ex cathedra* that the day for Protection is past, and this, he says, the great Conservative leaders affirm; very likely they do, for to any measure likely to benefit the public they have ever brought the dead weight of the conservation of old abuses to bear. It was only by the most persistent efforts that Sunday closing was fought out of them for Ireland, less the five large towns where it was most wanted. About the only chance of getting into office again for this party would be for them to raise the cry of "Fair Trade with Fair Protection." The nation would have cleaner hands were it to raise thirty millions a year from fair protective duties rather than by levying that amount annually from the destruction of human souls and bodies through the infernal ravages of what is called "Free Trade."

As to the tin trade I have studied it enough to be able to draw my conclusions from present facts, and not, as Mr. Budge does, from the ups and downs of the past. I do not know anything of the false prophets to whom he alludes, or whether they did harm or good to themselves or others. Nor will the study of past history enable anyone to say what the imports of Straits and Australian tin will amount to this year. That black tin has averaged 60*l.* per ton for the past 30 years does not in the least prove that it will average that, or more for the next 30 years. In an age of progression to take the past as a guide to the future is mere mental weakness.

In France, says "Common Sense," Protection is doomed. Well, doomed things often live long, and when the French doom their nation to imitate England's folly then France's prosperity will seriously wane. In England the financiers have always backed the Cobdenite craze, for it heaps their coffers with the wealth which should be distributed amongst home workers. No doubt the American financiers are eager to play the same game, and if they succeed America will have a bad time of it.

I am aware that a few, a very few, mines in Cornwall, have paid, even when black tin was 40*l.* per ton. West Kitty would pay handsomely with black tin at 40*l.* per ton, but can "Common Sense" find me another West Kitty in Cornwall. Well he knows that with black tin at such a price the big, deep tin mines, with their large industrious population of miners, must all be shut up. But "Common Sense" does not deplore times of depression; not a bit of it. He can then buy up some half or wholly ruined mines or shares in them for a trifle, and sell out when the next spasmodic rise in the price of tin occurs; but this private jobbing will not promote the welfare of the county of Cornwall, in fact, these jobbings have rendered the very name of Cornish mining offensive. What is wanted is a fair paying price for tin, copper, and lead, and a protective tariff to render it impossible for a few foreign raisers of these metals to come forward periodically and spread ruin and desolation through the home mining districts, and as "Common Sense" likes depressions, he would still get scope for jobbing when the ends fell off, or when they improved. "Bulls" and "bears" would still have pastures wherein to sport, and take delight, and far better still the Cornish miners would have steady and constant good wages to reckon upon for themselves, their wives, and children.

I do not know who are those who are "behind the scenes, and know all about it," but a close observation of the tin, copper, and lead markets has shown me that these too, too knowing ones are wrong at least nine times out of ten in their confident vaticinations. No doubt a powerful tin ring, able to buy up and hold all the Australian and Straits tin for three months, would send the price of tin up to 150*l.* per ton. Probably the people behind the scenes could do this if they had money enough, for they are doubtless wonderful fellows; but the Nemesis of reaction would leave Cornwall in a worse plight than it is at present. I most sincerely hope that my adverse predictions may be utterly falsified, and that the people behind the scenes who are eagerly buying tin at present rates (the market does not show it very much) will have a hearty laugh at my discomfiture, and express their triumph, not only behind the scenes, but in the columns of the *Mining Journal*.

I am sincerely sorry for your correspondent "A Scot." The concerns to which I suspect he alludes are scot and lot, so far a failure, and the mine where nine millions of dividends lay, asking to be taken out, has not had these treasures tapped as yet. Of course, those who are behind the scenes know all about it, and the sooner

"A Scot" gets behind the scenes the sooner will his anxious mind be set at rest. Mines are often flooded with water, and again they are often floated with falsehood, which elderly spinsters, and innocent (?) clergymen implicitly believe. There is a mine I could name which has laid many a clergyman low; it seemed to have powerful attractions for the reverend gentlemen. They looked for a *pondus auri* but got merely a *pondus plumbi*, which could only be raised at a heavy loss.

"Common Sense" does not touch upon copper and lead. I infer that the depressions in these are so deep and irrevocable that he does not see his way clear to the "bull" and "bear" gambolings which are still possible in tin, and shares in tin mines. Even the pundits behind the scenes are powerless to get a rise out of copper and lead, the prices of which the ineffable folly of our tariff-mongers has beaten down to commercial zero. RECIPROCITY.

Jan. 14.

MINING IN THE MOLD DISTRICT.

SIR,—This district, perhaps almost more than any other, has felt the depression generally existing in home mining for some years past, and where once one saw engines working, dressing-floors in full operation, and rows of carts carrying ore to the smelting lead works, with one or two exceptions the whole neighbourhood seems as deserted as Goldsmith's "Sweet Auburn." But, perhaps, when the *furore* for foreign mining has abated, and the Transvaal gold fields have joined their Indian brethren in the dim obscurity of the past, capitalists will come forward to recover and discover the untold mineral wealth lying at their own doors. There are dozens of mines in this immediate neighbourhood which men thoroughly acquainted with mining know (and who should know better?) are certain of success, if only sufficient capital be found, and that capital be spent in a practical and honest manner.

Again, there are large tracts awaiting exploration with every prospect of success—some where the lead-bearing measures are, for the most part, high and dry, and could be worked without the aid of machinery. It is refreshing, amid all this depression, to find that capital and enterprise have not altogether deserted us. We have, close to the town of Mold, a mine which we fondly hope will prove the pioneer of a new era in the mining industry of the district. I refer to the property now being worked by a company called the Gwernymynydd (Limited). Through the darkest of dark times this company has, for the past three years, been engaged in erecting splendid plant and sinking a deep engine-shaft for the purpose—1. Of working a very strong course of ore which has been proved, beyond the possibility of a doubt, to exist within a few yards of the point where the new engine-shaft will strike the lead-bearing measures. This course of ore was worked to the west of the present workings from clay down to the 160 yards level; immense returns of lead were made, and wonderful profits realised. This will be easily understood when I can state, of my own personal knowledge, that hundreds upon hundreds of tons were raised and prepared for market at 8*s.* and 10*s.* per ton; also that one small party of adventurers, who held a sub-take of a piece of this ground, 160 yards long by 100 yards wide, at one-eighth royalty, received in profit as the result of 15 months' working upwards of 43,000*l.*

This splendid course of ore was worked as far eastward as was possible from the existing shafts, and was proved to be carrying down towards the coal measures in full strength. To work this lead is then the object of the Gwernymynydd, and this goal—the object of so much expenditure, of so much anxiety, and of so much difficulty—is now very nearly attained, and no doubt two, or at the utmost three, months will see these riches laid bare, and the company will begin to reap the harvest for which they have waited so patiently, and which they so richly deserve. A word of praise is due to Captain Ben Williams, the energetic superintendent of these mines, who has been at his post night and day, and has pushed forward the work as quickly as possible, consistent with economy and the best interests of the company, and I will undertake to say that, taking into consideration the hard nature of the rock through which for a great part the shaft has been sunk, and the large quantity of water which has been met with, no work has been done more efficiently or at a cheaper rate since Mold was a mining district.

The above, however, is only the primary object of the company, as the ore referred to is in the flat measures, which lie horizontally on the back of the Cathole vein, which is one of the best Champion lodes of the district, and from which almost fabulous returns have been made at the western end. This lode traverses many hundreds of yards of virgin ground to the east of the old workings (this section of ground having been left as a barrier between the two mines formerly worked by separate companies), besides having several rich ends in the levels from the Cathole shaft, where operations were only suspended because auxiliary pumping power was required, which has now been erected at Gwernymynydd. This, then, is the second and, perhaps, the more important object, which the company has in view, and to develope this portion of the property I understand it is their intention to continue the deep adit level to the Cathole engine-shaft, and I believe also to drive a bottom level from Gwernymynydd to Cathole in the vein, thus thoroughly opening up such a section of rich mineral ground as has never been attempted in this neighbourhood. If this scheme is carried through in its entirety, of which there seems to be no doubt, I believe it will be the means of reviving the fallen fortunes of Flintshire mining, and that we shall see in our midst a flourishing industry, which will bring back prosperity to the district and handsomely recoup investors for the capital expended.

We are anxiously looking forward to the dawn of better times, and I do not think we shall have long to wait. These seasons of depression have, however, their uses, as many abuses are thereby swept away. Labour is not so exacting and mineral owners are content with less dues. When mining was prosperous in this district mineral owners insisted on a royalty of $\frac{1}{8}$th of the selling price of ore. Now they are glad to take 1-12th, or 1-14th, or 1-16th, and even 1-20th, as in the case of Gwernymynydd. MINING AGENT.

Mold, Jan. 14.

CALLINGTON DISTRICT.

SIR,—It is under consideration I understand to restart in this district the Silver Hill Mine if the former shareholders will assist. This venture originally was launched under the mining mania some few years ago; the work, nevertheless, was systematically, vigorously, and skilfully carried on under Capt. Richard, and, from outside testimony, it is admitted that neither time nor money was thrown away under his great energy to develope the concern. Yet withal this the result was delusive, so far as profit or the mine coming up to the standard created for it; and this high standard was, in the first place, owing to the prospectus and its overdrawn picture of riches—in short, many of the testimonies contained statements, models of assurance and rashness, which it is evident have wrought their result on the mining industry, being only a sample of many such there cannot be a doubt of.

Again this company further contemplated making reduction-works to treat the pile of ore gleaned from their operations, containing from 10 to 40 ozs. of silver per ton, so it was stated; but so far as I ever heard to the contrary the pile may be lying there yet, or sold under the liquidation, which I have only recently heard of. I dare say the blame of such a result is not far to seek—a board possibly little versed in mining that, combined with wretched bad management, got steeped in debt, which soon wrecked any chance of success; and I dare say the subscribed capital being run down, the plea was taken to wind-up the concern. I would be curious to know if the shareholders were consulted ere this happened?

As to the mine itself I have heard doubts of the Silver Hill being on the silver zone; be that as it may, there is no doubt silver ore was got in the intercutting of the Wheal Brothers lode. But the real question arises is there any chance of a new company succeeding? The benefits a company would have is—1. A mine well opened out, much of the same being proved to contain the elements of success. —2. A mine with very substantial working appliances, and almost new.—3. A mine having strong works, and everything to reduce labour and expense; and, lastly, a mine cheap. And so it is just possible that with judicious and careful management and the expenses reduced to a minimum, the same being always paid up as incurred and no running in debt, success may be assured. Now what is against its success—1. A large board and staff.—2. A board not versed in mining or business capacity.—3. The shareholders being only consulted once or twice a year, which is against all common prudence. —4. Taking into consideration the neighbouring mines and their results, such as Kit Hill. Nothing is assured. W. B.

Leith, Jan. 15.

CONTINUOUS DIGGING AT WHEAL JANE.—CHEERING NEWS FOR CARN BREA ADVENTURERS.

SIR,—Having business in the vicinity of Wheal Jane yesterday I called at the mine to have a look at Southey's improved tin-dressing machinery. Fortunately, I found Capt. Southey at the mine, and although an entire stranger to him, he showed me the greatest courtesy in taking me over the mine, and explaining in detail his system of dressing, which is indeed a great success, and reflects much credit upon him in its construction. He is, in my opinion, the only tin mine manager who has really benefited the industry in this century, and mining history in years to come will confirm this statement. As this is written with no other motive than to benefit tin mining, it will be well to give a few stubborn things—facts—with regard to a comparison of the cost of dressing at Wheal Jane, and prior and subsequent to the adoption of Southey's improved machinery, which has come as a blessing to tin mining in its present murky state. The cost was kindly made up from the books by Mr. Hancock, the gentlemanly purser, and it is no flattery on my part to say that if Wheal Jane will not pay under its present management, "She is gone in," as sure as a gun. I had with me Mr. David Mitchell, of Perranporth, a gentleman who has had 30 years' experience in the erection and superintendence of mining machinery, more especially dressing machinery, and after our thorough examination of the machinery, he was of the opinion of Capt. Southey and myself, that the process is applicable to tin, and more effective than the old process. The actual cost of manipulating 1000 tons of work from the collar of the shafts by Southey's process amounts to a little under 6*d.* for each ton. The cost of the same weight of work by the old process, which may be taken as an average throughout the county is not under 6*s.* per ton, or 1100 per cent. more. Now taking this statement as a fact, it will be seen by shareholders in tin mines that the industry is not in such a plight as many suppose it. But why is not Southey's system adopted generally throughout the county? Captain Southey and I are as one on this point, that it is nothing but downright prejudice on the part of the mining captains, who are by far the largest component part of the Mining Institute, and yet this Mining Institute was originated—*vide* the secretary's letter in the *Mining Journal* of Oct. 13—"to watch the mining interests of the county, and take what steps they may consider necessary to its welfare." All bosh this so far as the Mining Institute was never intended to support the lords of mines in their unjust demands. I should presume the late president was spun out for a subject when he eulogised the action of Mr. Basset in cutting the pound of flesh from the Dolcoath adventurers. They had no Portia to intercede for them—"The quality of mercy is not strained. It droppeth as the gentle rain from Heaven upon the place beneath. It is twice blessed. It blessed him that gives and him that takes." The sequel to the eulogy was the percentage Mr. Basset charged on the month's delay of paying the fine, no provision was made that not a drop of blood should be spilled in the process. Mr. Basset reserved that right to himself. No better choice could have been made than the selection of Mr. Frecheville as the President of the Institute, and it is to be hoped that during his term of office he will clear the Institute of the disgrace it has recently got into through the prejudice of those mining captains in connection therewith condemning things they know nothing at all about. My next letter will go into the details of Southey's system of tin dressing.

In the meantime, I would mention, for the benefit of Carn Brea adventurers, that Captain Southey is prepared to take the slimes of the mine, paying them 25 per cent. tribute, a splendid offer in the present state of the mine, and it is worthy of the immediate consideration of the company, as its acceptation means considerably lightening the load they are groaning under. The only provision Captain Southey mentions in regard to his contract is that they shall continue their present system of dressing. The dressing cost of tin mines is one, if not the most, serious tem in connection therewith, and by the adoption of Southey's system such an immense saving can be effected as I have stated, a fact that cannot be refuted. The prejudice of Cornish tin mine managers is seriously injuring the industry, to a greater extent than the mining public are aware of, and if the adventurers do not take up this important matter at once, and compel the adoption of Southey's machinery in unmistakable English, they are fools, and I trust they will appreciate my reminding them of the fact.—*Perranporth, Jan.* 17. W. NINESS.

NORTH PENSTRUTHAL.

SIR,—This mine has for some time been under a cloud, but better times appear to be at hand. In about five months the engine-shaft will be down for another level, when a good deposit of tin is almost sure to be met with. Again, the Gallist tin lode will soon be cut in the 50 cross-cut, which has been driving for the last three years, and must now be very near the lode. The management appear to think that the junction of the north and south lodes has already taken place—but is this at all likely? The lode in the 150 west is only 2½ feet wide, and surely the junction of two powerful lodes, each about 5 ft. in width, would result in something much wider and stronger than this. If a cross-cut were put out for 2 or 3 fathoms north in the 150 I feel sure it would intersect the north lode, and perhaps discover something very good. The trial would not cost much, and is very desirable. SHAREHOLDER.

Holford-street, Jan. 16.

EAST WHEAL ROSE GROUP.

SIR,—I am not the least surprised to find "A Scot" anxiously inquiring in last week's *Mining Journal* as to the future of these unfortunate mines. I use the word unfortunate advisedly, as the past history of the mines are a sufficient warranty that the lodes have been productive, and there is no reason why they should not be so again below the old workings. It is folly to suppose that the former workers left anything in the shape of mineral in the old workings.

It is not necessary to answer "A Scot's" pertinent questions as to the present position of the mines, financially and otherwise; suffice it to say that it is an impossibility to place them in a profitable position with the atom of capital in hand, and the current year must witness the death of this once famous group of mines of the old complaint —"asthma"—unless, peradventure, the promoters discover the "philosopher's stone" in the meantime. Upon the success of doing so rests their only salvation.—*Perranporth, Jan.* 15. W. NINESS.

WEST LISBURNE.—In his report upon the progress at the mines since the last general report, Capt. William Northey says:—We have made a new dressing-pond capable of containing 377,200 gallons of water, which will be found most beneficial for washing and cleaning the lead ore and to assist the crusher and pumping-wheel when required: if found insufficient it can be enlarged and made to contain double the quantity of water for a small outlay. We have also quarried a large quantity of stone for building the crusher-house and erecting the dressing machinery, and I am in correspondence for the delivery and completion of the same, which will enable us to send regular returns of rich silver-lead ore into the market. The new lode discovered on surface is about 22 fms. north of the main lode. A shaft has been sunk on its course to the depth of 25 ft. in a detached rock and shell; fine specimens of silver-lead ore were often found, varying from 5 to 100 lbs. in weight, some of which are to be seen at the company's office; but, on account of the enormous influx of water it was deemed advisable to suspend the sinking, and to crosscut from our main lode at the 14 fm. level, to intersect the new lode at a greater depth. We have discovered a good lode of lead ore in back of the 36 for upwards of 15 to 20 fms. in length. Judging from the great deposits that have been taken away by a former company, which extended to surface, we may fairly expect that this run of lead ore will continue to a great height, and lay open from 600 to 700 fms. of good stoping ground, which would produce from 600 to 1000 tons of silver-lead ore, and would realise from 6600*l.* to 11,000*l.* at present price of lead ore, it containing a high percentage of silver, that is, judging from the present appearance and value of the lode; but on account of the great influx of water, and especially in the wet season, our pitwork has been found insufficient to cope with the water, and I regret that the stoping in back of the 36, and other favourable points which I have previously recommended, have not been vigorously prosecuted, and the mine brought into a remunerative state; but acting under present instructions, I am in correspondence for 30 fms. of 10-inch pitwork, which will be found more than ample to cope with the water, and would enable us to work the mine in a more vigorous manner. In conclusion, I beg to state that you have a valuable property, well found with new and substantial plant and machinery erected for pumping and drawing purposes, which are in good working condition; also a powerful steam-engine with winding gear, &c., complete for hauling, &c., with necessary buildings for mining purposes; a well-defined mineralised lode traversing the sett for upwards of 1½ mile in length, varying from 20 to 30 ft. in width, which has yielded thousands of tons of silver-lead ore in the upper section of the mine, although now comparatively at a shallow depth compared with our adjoining mines, on the same run of lodes, they having been a source of yielding great profits, and if capital is brought forward to develope the West Lisburne Mine in a spirited manner there is every chance for success, and my opinion is borne out by a number of mining engineers, mineralogists, and geologists, and is further confirmed by the analogy of the great and rich runs of ore in the adjoining mines.

REPORT FROM CORNWALL.

Jan. 17.—Very few in this locality appear inclined, after what has taken place, to venture any forecast as to the probable course of the tin market; for one by one all the criteria which at one time seemed to afford material to form a judgment upon appear to fail in reliability, and statistics are to all appearance as fallacious as casual speculations. Hope naturally exists, but it is rather based upon the fact of former recoveries than the clear promise of a present one, and the feeling that matters cannot get much worse.

One is rather inclined to get a little out of patience with the manner in which the dues question is being treated. Now, there is an almost universal agreement of opinion that there are not more than a dozen mines in Cornwall—or, say a score in the two counties —in which dues are morally due, or in which they can be honestly paid. And what is the proposed remedy? Why, to go cap in hand to the lords and ask to be favoured with a remission. From our point of view, in the present juncture of affairs, these remissions are not favours, but rights. The ore that is being raised in most mines, seeing that it costs more to get it than it can fetch in the market, is absolutely of no value. The mine lords have nothing to sell, how can they expect to be paid? We have no doubt whatever that, as a rule, the appeals made will be liberally responded to, but what of that? Dues ought to be self-regulating—they should be as contingent on results in the way of quality of results as they are now absolutely upon the quantity. The rainy day should be provided for before it comes; not be attended by a scare and flurry directly it sets in, as if it were something wholly novel and unprecedented. As the adventurers generally do not seem to see how to arrange this matter, it is beyond the bounds of hope that some liberal-minded lord shall come forward and set the example of better things by granting a lease on the "dues on profits and dead rent for land occupied" principle, and letting his lessees understand—as in such a case he fairly might do—that the conditions of the lease are absolutely binding, and open to no revision or appeal. The present system is chiefly remarkable for the manner in which it breaks down directly it is put to the test. It is altogether a fair-weather management; and when the storm comes only makes matters worse by aggravating the severity of the blast, by adding additional burdens, and by supplying an element of depression which might have been avoided. And yet it goes on.

There are other points in which recent meetings seem more hopeful. The men and the adventurers both see, as a rule, that the principle which has been advocated in this column of increasing the quantity of work done for the same money is a wise one—in fact, the only wise way of grappling with the labour question. It is, moreover, beginning to be more fully recognised that more care must be exercised in the selection of the ore than some managers have shown in their natural anxiety to return as much tin as possible. Nobody would think of arguing against the proposition that the financial success of a mine does not depend upon the quantity of ore sent into the market, but upon the proportion between the receipts from that ore and the cost of raising it. And yet again and again this has been lost sight of in practice. Mr. Lanyon was quite within the mark when he declared at West Basset that thousands of tons of stuff were raised and dealt with that never ought to see the surface or go to the stamps. To effect this properly would require the exercise of closer supervision and probably a larger expenditure in that direction; but a penny saved is as good as a penny gained, and efficiency is always the truest economy.

Just a hundred Limited Liability mining and allied companies connected with Cornwall and Devon have been struck off the register this week; and the mining atmosphere seems clearer already for it. Barely a tithe of these undertakings had ever any chance of success. A very large proportion were never intended to succeed; and yet they have been multiplied to an extent that shows there must be an enormous amount of reckless speculation in the world, and that dupes, after all warnings, are well nigh as plentiful as ever. How much money they have cost the public it is impossible to say, but hardly less than a quarter of a million, perhaps not far short of half.

There is no very great harm in the proposals which recur periodically in periods of mining depression to set matters straight by imposing a duty on foreign metals, because there is not the slightest likelihood of any such course being adopted—and less so than ever at the present moment, when the attempt would meet with the strenuous opposition of all who have capital invested in foreign mines, a large and increasing number. If the proposition were really a practical one, it would, of course, have to be discussed upon its merits. This, however, is not the case, and there may be some little harm done by the non-recognition of the fact, leading men to build upon a delusive hope, instead of bestirring themselves to make the best of things as they are. The chief difficulties of Cornish mining are to be found, after all, at home—the chief difficulties that can be successfully grappled with and met—and we are much mistaken if this is not very generally recognised.

Prosecutions for breaches of the Metalliferous Mines Act are rare in Devon, but one of some importance has just cropped up at Southmolton. Mr. G. K. Kligender, agent of the Northmolton Mining Company, proprietors of the Stoford Mine, was summoned before the Southmolton Bench by Mr. Frecheville, Inspector of Mines, of Truro, for various offences under the Act—neglecting to case or otherwise securely fence off a portion of the shaft used for the ascent and descent of persons; for having fixed and allowed to be used a ladder in a vertical position, which was permanently used for ascending and descending the mine; for neglecting to have the working shafts of the mine securely cased or otherwise made secure; for neglecting to post in a conspicuous place at the mine an abstract of the Mines Act and the rules thereto. Mr. Bosson appeared for the complainant, and Mr. A. E. Shapland for the defence. Mr. Frecheville deposed that on June 29 last, having had complaints from the neighbourhood of the state of the Stoford Mine, he wrote to the defendant on the matter, and the defendant replied. On Oct. 9 witness visited the mine and found its condition most unsatisfactory. The mine was dangerous in the extreme, more so than any other he had seen. Men who had worked in the mine were called and corroborated the Inspector. The Justices considered each case proved, and fined defendants, including costs, a sum amounting to 17*l.* 13*s.*, which was ordered to be paid in a week. The Chairman remarked that the Bench hoped this would be a lesson to all owners of mines in the neighbourhood.

Carn Brea account to-day marks a most serious stage in the his-

tory of Cornish mining that shares should be giving away even little compared with the resolve to give it just another 12 months' trial. Nothing of late has so forcibly emphasised the extent of depression, and even to continue 12 months a monthly subsidy is to be paid towards the water charges by lords and neighbouring mines. Would it not be advisable to consider the position of the mines of the district on a whole with a view to similar action and mutual support if necessary over a wider area.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Jan. 17.—The Quarterly Meetings of last week have not resulted as yet in any large accession to the orders previously on the books of the manufactured ironmasters. The best sheet makers and the tin-plate makers are, perhaps, exceptions. And to-day in Birmingham numerous contracts were concluded, concerning which negociations were opened last week. Bars remain at 7*l.* 10s. to 6*l.* 10s., and for common sorts 6*l.* 5s. to 6*l.* Galvanising sheets (singles) are 7*l.* 15s. at outports, and 8*l.* 5s. for doubles. Pig vendors note the advance of prices in the North of England with much satisfaction. Native all-mines stand at 62s. 6d. to 60s., and common sorts at 40s. to 38s. Some North Staffordshire part-mine pigs are spoken of as having just sold in heavy lots on Birmingham Exchange at about 43s. 6d. to 44s. Coal is without change on the week. Quarterly contracts are now being entered into.

This (Thursday) afternoon in Birmingham a large and influential meeting of merchants, ironmasters, coalmasters, hardware manufacturers and others was held to consider the railway rates question. Mr. Alfred Hickman presided, and proposed the formation of a railway freighter's association, as suggested at the Wolverhampton meeting a fortnight ago, with an entrance fee and annual subscription. Mr. C. F. Clark (Wolverhampton) seconded, and it was carried. A committee of 14 was appointed to direct operations.

A meeting of the miners who are on strike in the Old Hill district against the introduction of new rules at the colliery of Messrs. Swindell and Collis was held on Monday. The Chairman (Mr. Henry Southall) denied a statement which had been made by Messrs. Swindell and Collis to the effect that the men employed at the Rowley Station Colliery and the Sandwell Colliery were working under the same rules as Messrs. Swindell and Collis wished to enforce. It was announced that subscriptions were coming in well for the men on strike, and that they believed "their fight would be victorious." The Chairman addressed the men on the question of the Wages Board, and explained why their representatives withdrew from it. At the close of the meeting the following resolutions were unanimously passed: "That we play on until the old rules are re-instated, and that we do not contribute to the Wages Board."

Before the Sedgley magistrates, on Monday, Wm. Rich, "doggie" at the Wednesbury Oak Colliery, was charged with permitting naked lights to be used in a working where explosive gases had been prevalent. Defendant examined the pit on Nov. 21, and found an accumulation of gas in a hollow. He brushed it out with his jacket, and then allowed the men to go to work with naked candles, at the same time telling them that there was some gas, and they must hold their candles low. An explosion ensued, and several men were seriously injured, one of them fatally. The defendant pleaded guilty, and the Bench inflicted the full penalty of 40s. and costs.

At the Potteries Stipendiary Police-court, on Monday, a pit-loader named Mountford, was fined 40s. and costs for smoking in a dangerous mine at Ford Green, when lamps were in use. Defendant admitted the charge, and excused himself by saying that he smoked because others set the example. He lighted his pipe by drawing flame through the gauze of a Davy lamp.

The North Staffordshire Mining Institute had read to them on Monday a paper "On Safety-lamps,' by Mr. Charles Gordon. He expressed the opinion that it was highly probable that the Davy and Clanny lamps would receive their death-blow from the Royal Commission, the former on account of its insecurity, and the latter by reason of its containing an element of danger arising from a sudden fracture in the glass. The lamp of the immediate future would, he believed, probably be the Williamson, the Protector, or the Belgian Mueseler. Mr. Craig, M.P., who took part in the discussion, thought that any light that was not self-contained would be impracticable. The Davy lamp enabled them to detect gas much sooner than the Mueseler—a fault in which was that it was extinguished by tilting. On the whole he considered the Stephenson lamp was the safest.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Jan. 17.—Efforts continue to be made to keep up the agitation for an advance of wages in North Derbyshire, and a couple of the prominent leaders, who prefer speaking and attending conferences for which they are paid have been discharged from their employment. This will, of course, be most acceptable to them, as they will be able to pose as victims of tyrannical masters. The miners, however, are not greatly impressed with what is being done on their behalf on the wages question, but quietly acquiesce in the resolutions that are passed at the meetings, for few of them now believe in the possibility of an advance of wages, seeing that trade is now the reverse of active. If pits are working short time the men know that trade is not good, and that wages are more likely to lower than to rise. At the present time the coal trade is comparatively quiet to what it was even a short time since, whilst prices have come down for most kinds of coal.

The business doing with London from such collieries as Clay Cross Eckington Staveley, Blackwell, and Grassmoor has been declining, and will continue to do so. The large stocks held by merchants in December have caused the supplies to keep them up to be of a moderate character. Prices have gone down at some places as much as 1s. per ton, and this, of course, augurs badly for the workmen, and it will not be at all surprising, should the present weather continue, that before a month has passed over the miners will have to submit to a reduction of their wages, and for this they will have themselves principally to blame. In steam coal the demand has kept up well, all things considered, but there is difficulty at times in getting markets for what is raised, and this would be still greater were it not for the number of furnaces in blast belonging to the owners of the mines. Gas coal is not going off so well, owing to the large quantities sent to the works during the latter part of the year, and to the decrease in the consumption as well. The ironworks continue to be fairly employed, both as regards pig and manufactured iron.

In Sheffield there are complaints in some branches that the year, so far, has not opened out well, and that many workmen are engaged on orders left over from last year, as fresh ones to any appreciable extent have not come to hand. The mills engaged on heavy plates have plenty to do, but during the early part of the week there was, at the Cyclops Works, a strike on the part of the puddlers, who wished to have a draw instead of allowing the company to hold the usual week's wages in advance; work, however, was resumed on Thursday, the money having been advanced, seeing that it was necessary after the men had been standing during the holidays and also for repairs. The ordinary sheet and ship-plate mills have opened out fairly, whilst there is now a good demand for hoop iron and wire. The Germans, it appears, are now competing with us in our own markets in steel plates for shipbuilders, and are able to deliver them at any of our ports for less than our Sheffield manufacturers have done. This is by no means pleasant for this branch of trade at home, more especially as the foreign plates are said to be really good. In Bessemer rails, also, the Germans are able to beat us abroad, whilst this branch, which was cradled and brought to maturity in Sheffield, has all but left the town. Our makers are now obliged to confine their operations to some of the home lines, principally owing to the charges for carriage by railway to any of our ports for shipping. Cutlery manufacturers are moderately well off for business, but as yet the orders received during the new year have been comparatively small. The file and saw branches, however, show some little improvement, and the same may also be said as regards edge tools. In Bessemer steel the make has been at least up to the average, and so has crucible steel. Some fair orders are in hand for springs, axles, tyres, and ordinary railway material, exclusive of rails. A considerable business, too, is being done in cast-steel wheels, as well as in various descriptions of steel castings. The railway wagon works in the district are well employed, as are most of the foundries.

The Coal Trade of South Yorkshire has shown a falling off since the new year commenced, yet meetings continue to be held on the wages question. The men, however, do not appear to care so much for them, and have evidently come to the conclusion that there is no chance for wages being now forced up, when so many of them are on short time. The Association which has its headquarters at Barnsley has announced its intention of starting a paper in the interest of the miners alone, and it is expected that the prospectus will appear in the course of a few days. There is certainly no reason why such a large body of workmen should not have an organ of their own, although previous attempts in the same direction signally failed. It is, however, to be hoped that the new venture of the Yorkshire Miners' Association will turn out more successful.

TRADE IN SOUTH WALES.

Jan. 17.—The amount of coal sent away from Cardiff in 1883 was 6,761,455 tons foreign and 1,038,596 coastwise; Newport, 1,581,453 tons foreign and 977,495 coastwise; Swansea, 988,817 tons foreign and 799,833 coastwise. Patent fuel was exported from Cardiff in the same period to the extent of 166,823 tons; Swansea, 348,174 tons. Coke—Cardiff, 25,069 tons; Newport, 3579; Swansea, 5861. The amount sent away from Cardiff last month was 554,368 tons foreign and 76,823 coastwise; Newport, 125,274 tons foreign and 76,596 tons foreign and 62,297 coastwise; Swansea, 70,787 tons foreign and 62,297 coastwise; Llanelly, 4835 tons foreign and 13,488 coastwise. Prices are tending upwards, and there is every probability that they will advance considerably as the year advances. The volume of trade in coal between South Wales and London is considerably increasing. Most of the coal carried by the Great Western to the Metropolis is from the collieries in South Wales, but the London and North-Western also takes many thousands of tons of coal monthly from the same districts. By both lines a large tonnage of coals is sent from the pits of the Aberdare Iron Company, Merthyr, and Wayne's. The total from these places by the two railways during the year was 146,000 tons. The London and North-Western during the year took nearly 19,000 tons from Bwlfa, and 13,000 tons from Fforchaman, besides a considerable tonnage from Rhondda Mountain, Crynant, Cwmaman, Tredegar, and Dowlais Top. The Great Western did not do so well during the early part of the year, but made up for its early deficit by an increased tonnage in October and December, so that the year's traffic is by no means unsatisfactory. It carried the largest quantity for the year from Nixon's Navigation, nearly 51,000 tons, Merthyr Crawshay following with 49,000 tons; then comes the Plymouth Iron Company with 42,000 tons, and Bwllfa with 36,000 tons. Cwmdare has maintained a good position during the greater part of the year, having got considerably the best of Blaina, the respective totals being 45,500 tons and 335,000 tons; whilst Fforchaman sent rather more than the latter quantity over the Great Western. A full average tonnage was also sent from Aberaman, Abertillery, Resolven, and Mountain Ash.

The Iron Trade may be said to be nearly extinct in South Wales, and the steel trade has taken its place. The works are in full operation at prices which leave little or no margin of profit, notwithstanding the reduction in wages. Competition has at last given all the advantage to the customers, and there is no encouragement for the manufacturer. The amount of iron and steel sent away from Newport in 1883 was 199,613 tons; Cardiff, 106,750 tons; Swansea, 6179 tons. Iron ore has come in at Cardiff to the extent of 5815 tons from Bilbao, and 2170 from other places. Newport received 6711 tons from Bilbao, and 4000 from other places. Prices remain low.

The Tin plate Trade is working towards its old groove, and production is now in excess of the demand. The amount in stock at the end of 1882 was 400,000 boxes, and now, to the astonishment of most people, it is little short of 300,000. Good IC coke only realises 15s. 3d. per box. It is a fortunate circumstance that the orders in hand are sufficient to keep the works going.

TRADE OF THE TYNE AND WEAR.

Jan. 17.—The Steam Coal Trade in this district is exceptionally good considering the winter season. This appears to be owing mainly to two causes—the extremely mild winter so far has caused the Scandinavian ports to remain open, and to these vessels are still running, and considerable progress has been made in introducing their coal to the coaling stations in the East and various other parts of the world. It is well known that it can be delivered at these stations at rates considerably below the prices paid for Welsh, and that for general steam purposes it will bear comparison with any other steam coal. The general coal trade continues on the whole in a fairly healthy state, and most of the works are fully employed; it is very fortunate that this large and important trade in this district should present a favourable prospect for the ensuing year. The miners in Northumberland and Durham are working under a sliding-scale, and at present the relations between the masters and workmen are good. The gas coal trade continues fairly good, although orders are not so pressing as they were a month ago. The steam coal trade is fair on both rivers, and there is a good demand for manufacturing coal, and for screened nuts, bunker coal, &c. The extremely mild winter has a depressing effect on the house coal trade, but there is not a great deal to complain of even in that. The output of coal is not likely to be increased much, if at all, in these two counties during the year, and consequently if the demand continues to improve enhanced prices may be expected, and certainly it is very desirable that this hope should be realised, as only collieries favourably situated can realise much profit at present rates.

The Iron Trade, as we have so often remarked of late, is entering upon the new year with gloomy prospects. The quarterly meeting lately held has had no beneficial effect. There appears to be a general impression that less iron will be required this year than during the last. However, we have the facts plainly before us a greater production in the past year than in any previous one, and at the close the price of pig-iron reduced from 43s. to 36s., and it is also quite clear that little or no profit can be made out of any kind of iron at present prices, it will, therefore, excite no surprise that the ironmasters now contemplate a large reduction in the make. It is certainly remarkable that the output of iron and many other products has been constantly increased for a long period and the cost of production has remained almost stationary, while prices have continued to fall. This would appear to point to a serious convulsion in trade at some period. If the ironmasters combine to make a serious and large reduction in the make it may have some effect, otherwise the inevitable result must be the failure of some of the weaker firms. Gloomy prospects are entertained with reference to the steel trade of the district. Messrs. Bolckow and Vaughan have no orders on their books, and they have a large stock of rails on hand, and were prepared to stock more if the men had accepted the reduction of 10 per cent. offered; but this the men refused to do, and 3200 of them are now out.

CLEVELAND MINERS' WAGES.—These miners were working on a sliding-scale last year, but terminated it by giving a proper notice, with the aim of securing a more favourable scale; the masters, however, could not, owing to the state of trade, accede to the new scale proposed. At present the masters contemplate giving notice to the miners for a reduction of wages, but it has been agreed that this notice shall be deferred until Jan. 22, and in the meantime further attempts will be made to agree to a sliding-scale. It is now understood that the ironmasters of the North of England decided, on Saturday, to blow out from 17 to 20 furnaces. There are at present 117 furnaces in blast in the district, and the average production of each in the week is 440 tons, so that a substantial reduction in the make is intended. If 20 furnaces are blown out the make weekly will be reduced by nearly 9000 tons. This course has been adopted in Scotland, South Wales, and in the hematite district in Cumberland, where a number of furnaces have been blown out or damped down. In the past three months over 30 furnaces have been blown out in these districts. At Middlesborough, on Tuesday, there was a large attendance at the iron market, and much animation, the main topic of conversation being the proposed large reduction in the make of iron. The price of pig-iron advanced 1s. per ton. It is proposed to attempt to settle the dispute at the Eston Steelworks by appointing a small committee of owners and workmen connected with the trade.

The Shipping Trade here is in a very depressed condition at the present time. Freights to most parts of the world have sunk to a very low ebb, which renders it impossible to work ships profitably, and, consequently, many vessels have been laid up for the present on these rivers. It is computed that on the Tyne there are about 50 steamers laid up, and on the Wear 30 steamers are idle. Foreign steamers are carrying coal from the Tyne to Swinemunde at 3s., and 3s. 6d. per ton to Stettin. Silesian coal, it is said, is being carried to Copenhagen from Swinemunde at 3s. 6d. per ton, sailing vessels. Although inferior in quality to our steam coal, the difference in price is in their favour. The shipbuilding yards on these rivers continue to be fairly employed, and launches of vessels, mostly large steamers, are frequent. There are not so many enquiries for new ships at present, but there is work on hand at most of the yards, which will occupy them for some time to come. At the various machine shops, marine engine-works, foundries, &c., there is a fair amount of work in hand.

The Chemical Trade on these rivers continue to improve. Bleaching powder, the most important product, is now sold at 9*l.* 7s. 6d., and soda crystals and other products are also increasing in value. There are a good many enquiries on hand, and more business doing generally. On the whole, this important business is now in a healthy and sound condition. Soda crystals are 3*l.* 2s. 6d., and other articles in proportion. On Monday the chemical trade was very brisk, and business was done at advanced prices. There are very large enquiries from the United States, and that at rates above those lately quoted.

The Lead Trade here is in a very depressed condition so far as prices are concerned. Spanish lead has been sold at about 12*l.* 12s. At the Green Hurth Mine, a famous local lead mine, there has been a rich find of lead. A vein running north and south was intersected by an east and west vein, and lost for a time, but it has now been discovered, and it is proved to be very rich in lead; it is expected to yield 2 tons per fathom, which will enlarge the returns.

DISPUTED PRIORITY OF INVENTION.—At Castle Eden, on Saturday, Henry Whittle was charged with shooting Mr. W. F. Hall, colliery manager, of Haswell, who, however, was unable to attend to give evidence, so that it was necessary to adjourn the case to Thursday next. Mr. Whittle was remanded, and he stated that what he had done was for revenge. He declared that he was the inventor of a coal-getting machine, which has been introduced to the public as the invention of Hall and Lewis, and that he had been deprived of the invention by Mr. Hall. He also stated that he had spent 50*l.* over the invention, and that Messrs. Hall and Lewis had promised to give him that amount, but had not done so.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Jan. 17.—A considerable number of the North Cardiganshire lead mines seem likely to change hands, and with the infusion of new life and the advent of fresh capital we may hope—especially if we could get an advance in the price of lead—to see this mining district wearing a more active and prosperous appearance. The latter portion of these remarks applies to each lead mining district in Wales as well as the adjoining one of Shropshire. This last observation leads me to ask whether any of my readers have ever endeavoured to trace the connection between the lead-bearing strata of Shropshire and those of the Van district of Montgomeryshire. By referring to a geological map they will see that the two districts are on the same strike or direction of the strata. The older Llandulo rocks which carry the lead being covered in the intermediate country by the newer beds of Bala and Wenlock age.

Notwithstanding the present depressed state of the lead and copper trades, there is still some enterprise going on in prospecting and opening mines. Among these operations I may refer to some very interesting explorations which have been going on for some time among the old copper mines in the wild cwms and precipices on the south side of Snowdon. The ores of this region are a mixture (mechanical) of copper, lead, and zinc, which occur in massive well-defined lodes, and the explorations seem to point towards successful results. Then, in Anglesey, besides the works and explorations going on at the great mines Mona and Parys, there are two or three other trials on which the copper ore, if not occurring in such large bodies, seems more concentrated and of higher quality. Reference has been made in the Journal to a discovery of graphite in a mine at Llangelenyn, near Conway. Will the owners or manager tell us something more about it—is it a bed or a vein? I should rejoice to see a good graphite mine established in the Principality. There is a thick bed of impure graphite occurring in similar strata to those of Llangelenyn, in Montgomeryshire, which can be cheaply mined if there were only economical appliances for washing and purifying it.

Some idea of a Welsh slate quarryman's regard for education may be gained from the fact that the Bethesda (Penrhyn) men have subscribed 1400*l.* to the new North Wales College, or about 10s. a man. This, too, at a time when they are not earning high wages, and when the Quarrymen's Union have just voted 2000*l.* to assist in the emigration of such men who desire to settle as farmers in Manitoba and other provinces of Canada. The threatened reduction of 5 per cent. in the wages of the men at the Festiniog Slate Quarries has been settled by both masters and men accepting a reduction of 2½ per cent. Perhaps one of the most depressing illustrations of the present inactivity of the slate trade is seen in the disused inclines, tramways, works, and quarry of South Snowdon, with the fine quay built at Portmadoc. The long land carriage of 14 miles has rendered it impossible to compete with quarries close to railway communication.

In railway matters the works of the Whitland and Cardigan Extension are being pushed forward. No opposition on Standing Orders is expected to the Connah's Quay Railway Bill, or to that of the Denbighshire and Shropshire; but a petition has been lodged against the Cheshire lines—Nantwich and Whitchurch Junction. The sum of 277,950*l.* 9s. 9d. in Consols, equal to 280,729*l.* in cash was lodged with the Chancery Division of the High Court of Justice last Saturday by the promoters of the Manchester Ship Canal Company, in compliance with Standing Orders, all of whose requirements have now been complied with. This sum is equal to about 4 per cent. of the total amount of capital it is estimated the undertaking will require —6,904,186*l.* 12s. 2d. The subscriptions are flowing in, and it is hoped that with matured and improved plans the enterprise will receive the sanction of both Houses of Parliament this session.

COMPOUND DIVISION READY RECKONER.—In the review of this volume in the *Mining Journal* of Dec. 15 the misplacing of one or two decimal points in the preface was referred to as throwing doubt upon the accuracy of the entire volume. The author, Mr. WILLIAM WETHERED, of Clifton, Bristol, has this week called upon us and explained the method by which he obtained the results given in his tables and the means by which he tested their accuracy, and as both process and test are sound there need be no doubt as to the thorough reliability of the figures. In cases where a series of corresponding calculations have to be made the use of the book would beyond question save time and labour, as, for example, in ascertaining what proportion each item of expenditure bears to the entire cost. Thus, supposing that 1400*l.* 5s. 5d. has been expended in raising and marketing 3539 tons of coal and that it is required to know how much per ton has been paid for surface labour, underground labour, materials, horse keep, mechanics, office salaries, incidental expenses, rates and taxes, royalties, commercial charges, and sundries respectively, it is obvious that each item would involve a distinct calculation and that the last of the eleven would be exactly as much labour as the first. With Mr. Wethered's Ready Reckoner the page containing the column 3539 tons would be turned to and the whole of the results obtained from the one column of 12 lines. The royalties paid on the whole quantity having been 200*l.* the table shows that the royalty per ton has averaged 13·563 pence; similarly the commercial charges, 250*l.* (that is, half of 500*l.*), is seen at a glance to be 16·954 pence

per ton, and the figures for the other items are taken out in the same way. The 11 results can probably be obtained in as many minutes, and the power of working accurately with the tables could be easily acquired with a few hours' study. Wherever such calculations are necessary the use of the volume will save time and give results in the accuracy of which full confidence may be placed. When the book is examined it will cause no surprise to learn that its calculation occupied the author 2½ years, and when it is stated that he is now but 19 years old, his industry and diligence cannot but be admired.

FOREIGN MINING AND METALLURGY.

The condition of the French Iron Trade has not improved, and in the district round Paris orders have been offered to the local forge-masters at terribly low rates. The proprietors of rolling-mills do not appear disposed to accept these orders at present, but it remains to be seen what they will do before the winter has been finally disposed of. In the Longwy group the situation is, perhaps, a little more satisfactory than in other localities. The deliveries from this district amounted in December to 36,000 tons, and stocks have been reduced by 6000 tons or thereabouts. Another furnace is about, it is said, to be blown out in the Longwy group, although the number of furnaces in operation in the district does not exceed 21. There are now four furnaces out of blast in the district; but, on the other hand, four new furnaces are in course of construction. Tenders have been invited in France for 10,000 tons of rails for an Algerian railway company. A contract is also about to be let for 36,000 tons of rails upon Italian account. Feebleness continues to be the prevailing characteristic of the German iron markets; pig has been greatly neglected, and iron has not been much better maintained. There appears to be a general impression that the year which has just commenced will be an unfavourable period in the annals of German metallurgical industry. The steelworks are still pretty well employed, but if the construction workshops had not received Government orders to the aggregate value of 400,000*l.* the outlook would have been bad indeed. The Dortmund Union has obtained a contract for a small lot of rails at Nordhausen. Proposals are stated to have been made to German industrials for the construction of six ships of war for China.

The weather has continued mild in Belgium, and unless a change takes place shortly several qualities of coal can scarcely fail to show weakness. Thus far, however, previous quotations have been pretty well sustained, and no one appears to consider it necessary to make concessions. The current production has been readily disposed of, and some descriptions must even be said to be scarce. In the Couchant de Mons there has been no falling-off in the demand. Industrial coal has been more depressed than household coal; in the Liége basin, business has, however, been better maintained than in the Hainaut. The general tone of the German coal trade has remained fairly satisfactory, although industrial coal has been somewhat neglected. The markets have been sustained by a tolerably good demand which has prevailed for household coal, while the export coal trade of Germany has been also making progress. The export movement has been more particularly increasing *via* the Rhine; the demand on Italian account has, if anything, been declining rather than otherwise. The deliveries of German coal to Hamburg for exportation and otherwise amounted last year to 513,420 tons, as compared with 475,890 tons in 1882. The movement of coal over the lines accommodating the basin of the Ruhr fell off to some extent in the second half of December, having amounted in that period to 82,910 tons per day, as compared with 84,050 tons in the first half of the month. In the second half of December, 1882, the daily movement did not, however, exceed 81,860 tons. Coke has shown a downward tendency upon the German markets. Other combustibles have, however, been generally unchanged.

The Belgian iron trade has not experienced much change. There are still great complaints of a general want of orders, and the feebleness of the situation has been forcibly illustrated by a further reduction established at a recent adjudication of plant for the Belgian State lines. There was a reduction more particularly of 2*l.* per truck in the tenders submitted for the delivery of coal trucks. Pig has continued neglected in Belgium, and iron would be sold by some industrials at almost any price. In the case of a transaction of any little importance fresh concessions would be made from the low rates which are now regarded as official. In the Charleroi district the Houdeng and Lion-Belge rolling-mills have been stopped, and the other mills of the group have sensibly reduced their production. There appears little chance of an improvement being established in the general situation for some time to come. English pig has been neglected in Belgium at the price which has been nominally current for some time past—2*l.* 2s. 6d. per ton. At Charleroi casting pig has made 2*l.* 14s. per ton. Athus-Halanzy pig has not exceeded a quotation of 2*l.* 4s. per ton. As regards refining pig, hard pig has been weak and uncertain at 2*l.* 2s. per ton; ordinary pig at 1*l.* 18s. per ton; and mixed pig at 1*l.* 14s. per ton. In the Belgian Luxembourg pig has been maintained at 1*l.* 18s. 10d. per ton. Iron has been quoted in Belgium at 4*l.* 16s. per ton, with a difference of 6s. per ton per number, No. 2 being priced at 5*l.* 2s. per ton, and No. 3 at 5*l.* 8s. per ton. No. 3 plates have averaged 7*l.* 6s. per ton, while plates of commerce have averaged 8*l.* 18s. per ton. A new tariff for metallurgical products was introduced between certain stations on the Belgian State Railways on Jan. 1.

ARTIFICIAL STONE FROM CLAY AND PEAT.—For the manufacture of stone of different degrees of hardness from clay and peat an improved process has been invented by Mr. EDW. MURJAHN, of Hamburg, which consists of mixing in a damp state clay and peat (which latter must be pulverised in certain proportional quantities), and by forming out of such mixture stones, blocks, ornaments, or other objects, which after being dried to a certain degree are burned in kilns or otherwise like common bricks or pottery. According to the proportion of peat included in the mixture the material produced varies in density, weight, and hardness. One portion of peat and two portions of clay produce a material that may be usefully employed in the construction of walls for buildings. As the weight of this improved artificial stone is less than that of common bricks the foundation need not be so strong as would be required if the latter were used. Another advantage of this improved manufacture is that the admixture of peat secures a thorough and uniform burning of the articles, in consequence of which the degree of hardness, as well as the colour of objects made, according to this process is very uniform. In cases where it is of importance to produce a stone that is fire-proof to a very high degree the clay as well as the peat used must be carefully washed, so that sandy admixtures and other impurities are removed.

APPARATUS FOR USE IN BLASTING ROCK.—In blasting rock it is usual after the blast-hole has been made and the cartridges inserted to close the mouth with a tamping of clay, sand, or other material. This method fails to utilise anything like the full force of the charge, and the tamping is often blown out with no other result than an injurious enlargement of the blast hole. According to the invention of Mr. H. N. PENRICE, the charge is confined in the blast hole with a metal holder. The two ends of the holder fit the hole as pistons before and behind the charge, and they are connected by a spindle or by a cylindrical case, with one or more longitudinal apertures according to the work to be done. This holder serves two purposes—it so connects the piston ends that they can only be separated to release the charge by tearing it asunder, the resistance causing a most efficient tamping, and it also allows of the force of the explosion being directed where it is required. The outer end of the charge holder terminates in a cone beyond the piston, round which sand or any other tamping may be rammed very hard, as the blow cannot reach the explosive. The section of the holder is made rather less at the inner piston end (which touches the rock and is made as gas tight as possible) than at the outer end, so that it may break there and be easily repaired. Intermediate pistons may be placed at intervals to increase the effect to almost any extent.

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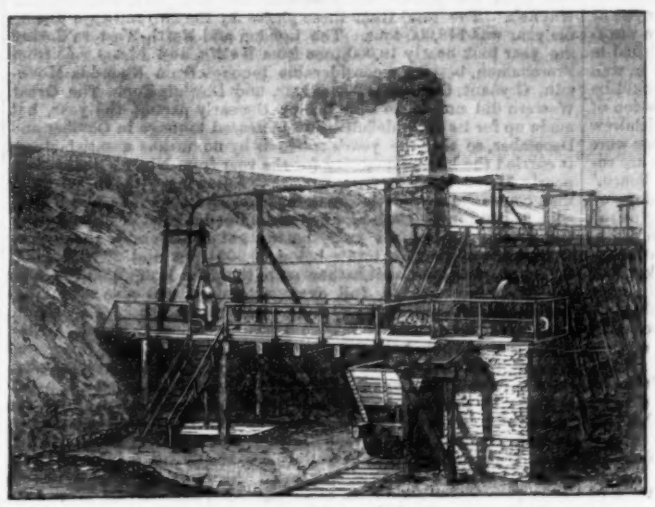

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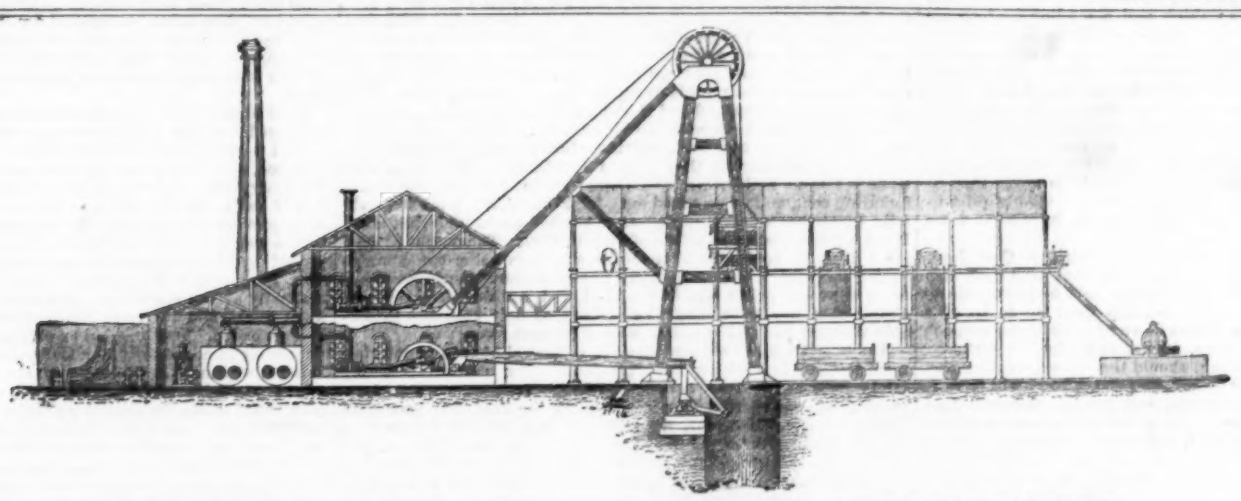

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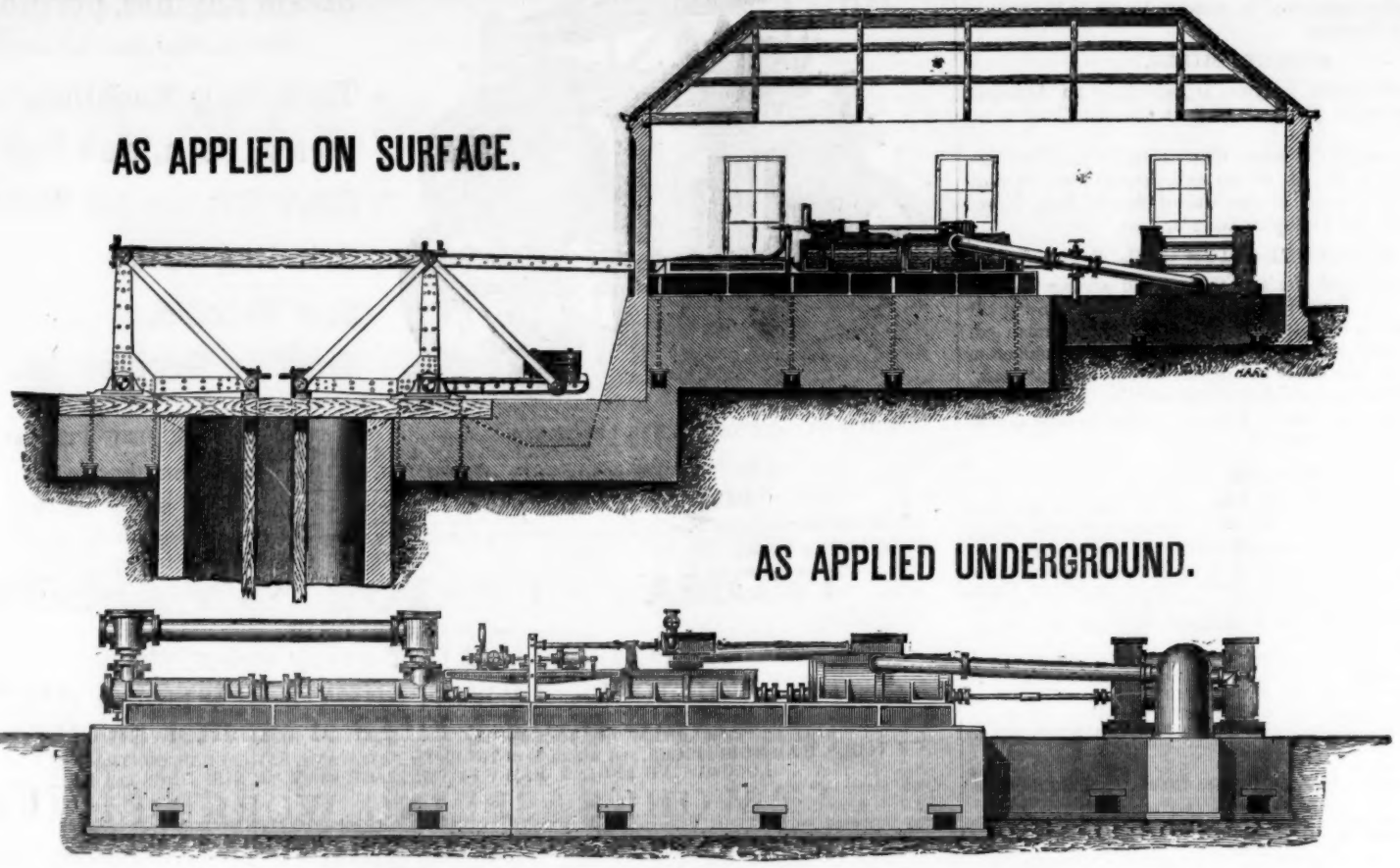

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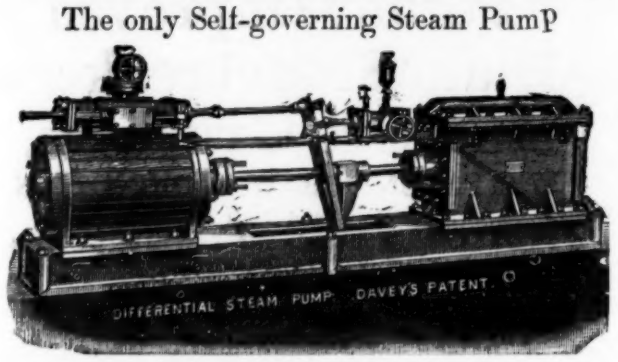

See Reduced Price List.

PRICE LIST.

Diameter of Steam Cylinder. Inches.	Diameter of Water Cylinder. Inches.	Length of stroke. Inches.	Gallons per Hour.	Height to which water can be raised with 40 lbs. steam pressure. Feet.	PRICE. £	Price with Condenser, in Suction Pipe. £	Price with Air Pump Condenser. £	Diameter of Suction and Delivery Pipes. Inches.	Diameter of of Steam Pipe. Inches.	Diameter of Exhaust Pipe. Inches.
10	5	15	5,200	250	65	72	85	5 3/4	1 1/2	2 1/2
10	7	15	10,400	130	70	80	100	6	1 1/2	2 1/2
10	9	15	17,300	70	85	100	120	4 1/2	1 1/2	2 1/2
12	6	24	6,500	250	90	104	130	5 1/2	2	2 1/2
12	7	24	10,500	180	96	110	136	6	2	2 1/2
12	8	24	13,500	140	100	114	142	7	2	2 1/2
12	10	24	21,300	90	120	136	175	5 1/2	2	2 1/2
14	7	24	10,400	250	110	130	156	6	2 1/2	3
14	8	24	13,500	190	120	145	165	6	2 1/2	3
14	9	24	17,300	150	130	150	172	6 1/2	2 1/2	3
14	10	24	21,300	120	140	162	190	7 1/2	2 1/2	3
14	12	24	30,800	80	160	190	216	9	2 1/2	3
16	8	24	13,700	250	140	170	195	6	3	3 1/2
16	9	24	17,300	200	150	180	215	6 1/2	3	3 1/2
16	10	24	21,300	160	160	196	225	7 1/2	3	3 1/2
16	12	24	30,800	110	180	220	246	9	3	3 1/2
16	14	24	42,000	80	200	242	264	10 1/2	3	3 1/2

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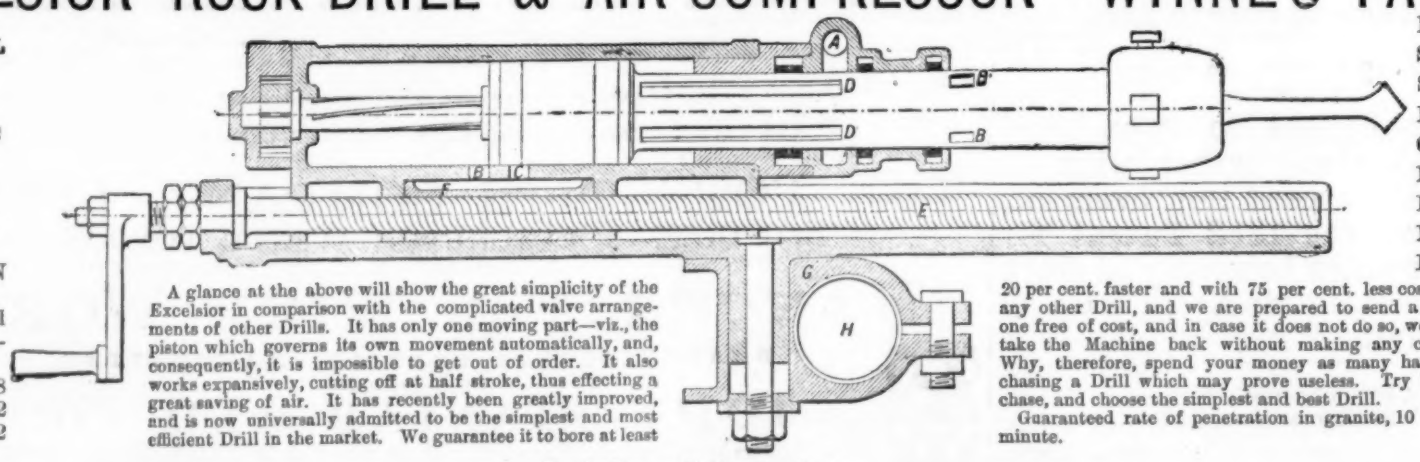

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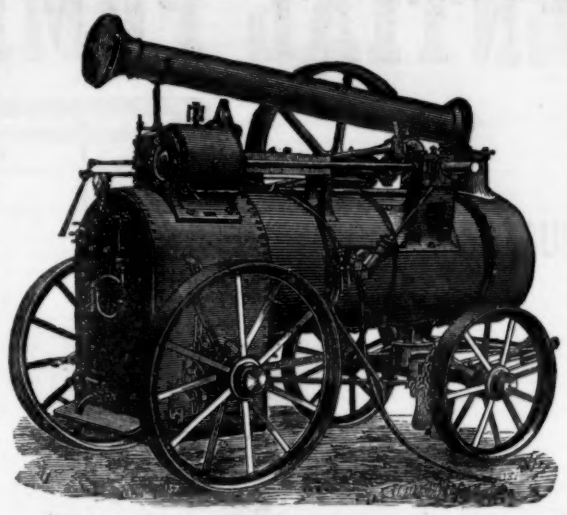

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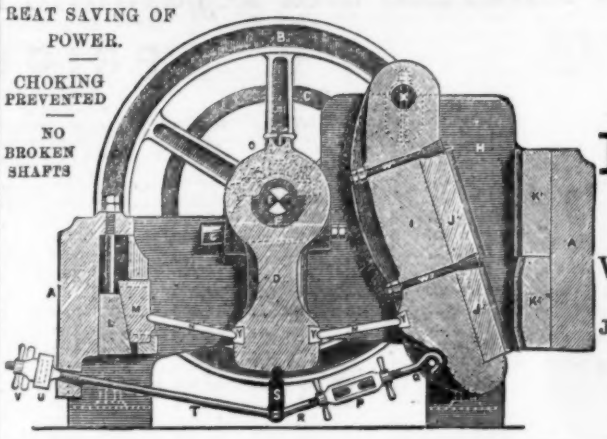

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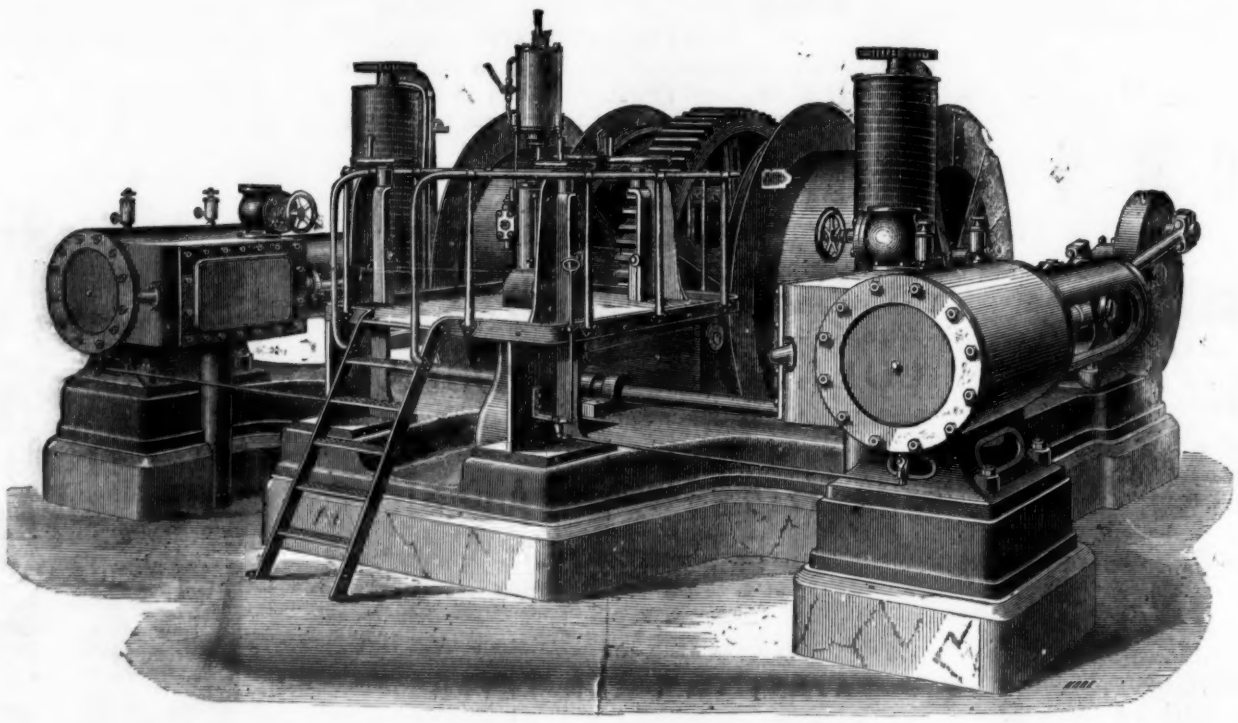

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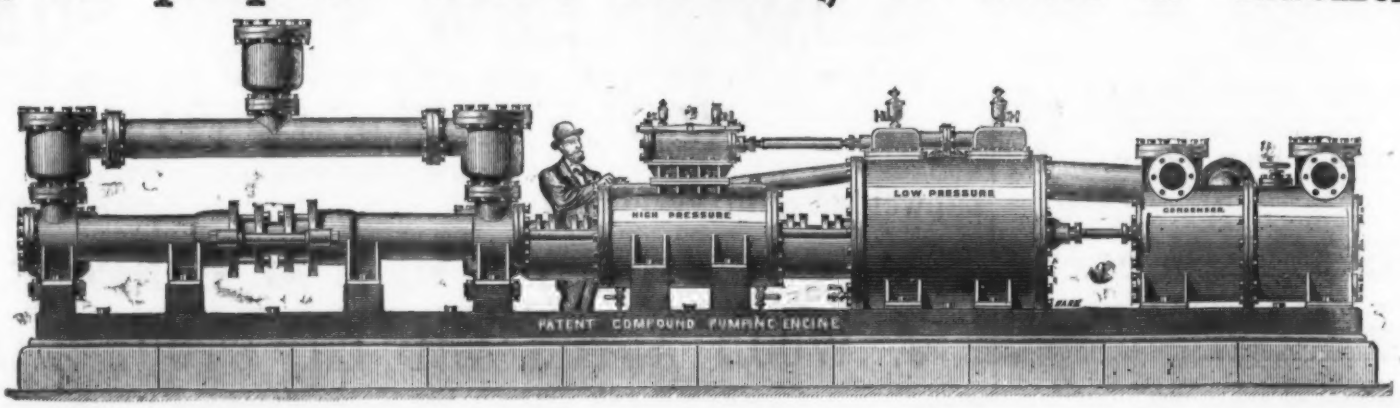

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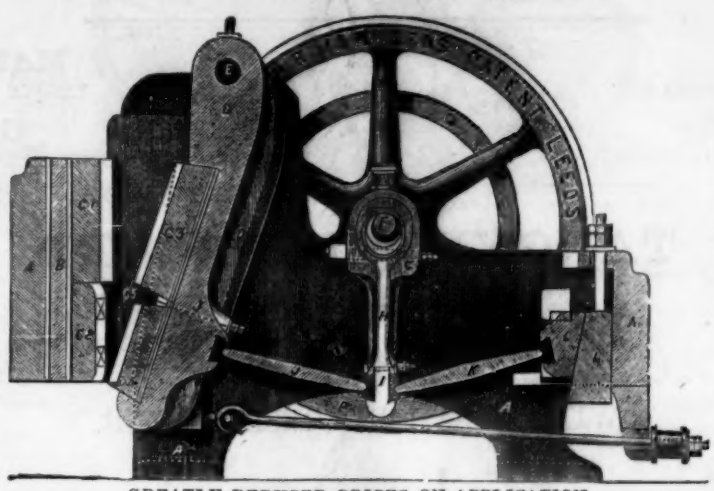

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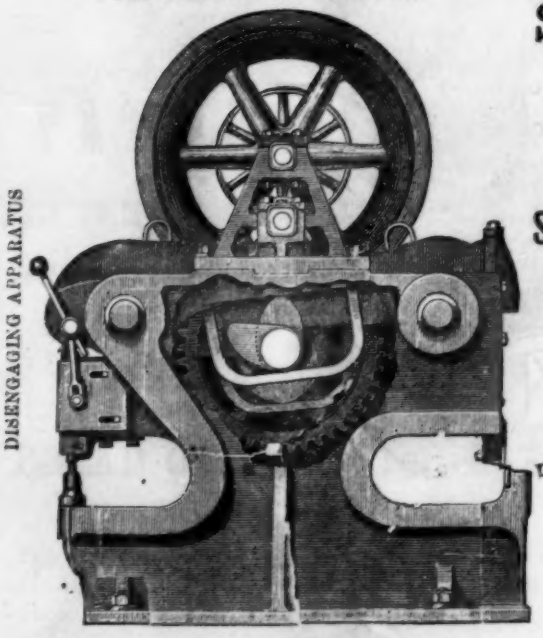

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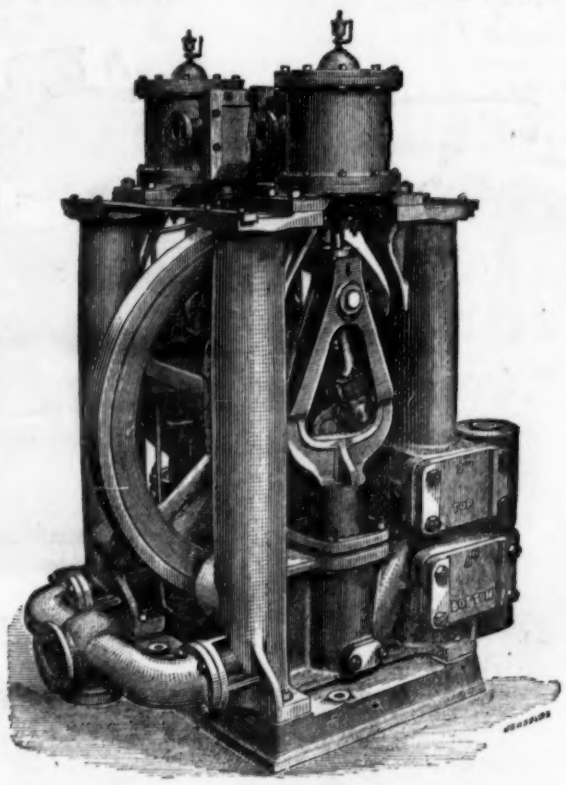

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